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HEALTHY START

UNDERSTANDING THE USE OF VOUCHERS AND VITAMINS

FINAL REPORT

May 2013

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LIST OF ABBREVIATIONS

AIDS	Almost Ideal Demand System
BHPS	British Household Panel Survey
BLS	Bureau of Labor Statistics
CEDS	Consumer Expenditure Diary Survey
CMO	Chief Medical Officer
CPD	Continuing Professional Development
CV	Curriculum Vitae
CSFII	Continuing Survey of Food Intakes by individuals
DCSF	Department for Children, Schools and Families
DEFRA	Department for the Environment, Farming and Rural Affairs
DH	Department of Health
DWP	Department for Work and Pensions
EDD	Estimated Date of Delivery
EFNEP	Expanded Food and Nutrition Education Program
ESDS	Economic and Social Data Service
FSP	Food Stamp Programme
GP	General Practitioner
HMRC	Her Majesty's Revenue and Customs
HSE	Health Survey for England
ID	Identity
IFS	Infant Feeding Survey
LC&FS	Living Cost and Food Survey
MRM	Multi Resource Marketing Ltd
NATCEN	National Centre for Social Research
NBER	National Bureau of Economics Research
NDNS	National Diet and Nutrition Survey
NGO	Non-Governmental Organisation
NHS	National Health Service
NIHR	National Institute for Health Research
NSPD	National Statistics Postcode Directory
ONS	Office of National Statistics
PCT	Primary Care Trust
REPEC	Research Papers in Economics
SHS	Scottish Health Survey
SNAP	Supplemental Nutrition Assistance Program (replaced the FSP)
SSCI	Social Sciences Citation Index
UK	United Kingdom
US	United States of America
WFS	Welfare Food Scheme
WIC	US Supplemental Food Program for Women, Infants and Children

EXECUTIVE SUMMARY

Background

Healthy Start is a statutory means-tested programme that aims to improve the health of low income childbearing women¹ and children by providing a nutritional safety net for them, promoting healthy eating and breastfeeding, and encouraging access to health professionals. The Healthy Start scheme provides vouchers which can be exchanged for fresh or frozen fruit and vegetables, plain cows' milk or infant formula, and coupons for free vitamin supplements. Women who are at least 10 weeks pregnant and families with children below the age of four are eligible for Healthy Start if they receive qualifying welfare benefits/tax credits or if they are pregnant and under 18. Current challenges facing the scheme are the uncertainties around proposed benefit changes and the restructuring of the NHS with transfer of public health responsibilities to local authorities.

Study aims

The main aims of this evaluation were to give a real life view of the operation of the scheme among potential beneficiaries of Healthy Start, to provide evidence to inform the improved operation of Healthy Start, and to undertake a feasibility study for economic analysis.

Methods

Three literature reviews informed this multi-method study: a narrative review of qualitative studies; an update of the Food Support Review (D'Souza et al. 2006) and a systematic review of economic literature on voucher-based supplementary feeding schemes

Focus group discussions, a national electronic consultation, participatory workshops and telephone interviews were used to explore the views of a wide range of health practitioners and user advocates (n=669), and low-income women from diverse cultural and linguistic backgrounds (n=113).

Two cross-sectoral workshops were attended by 56 stakeholders from a wide range of backgrounds including practitioners, service managers and commissioners, policy makers and advocacy groups. These added context and explanation to the study recommendations, identifying barriers and positive strategies, and clarifying the most useful economic questions.

An economic feasibility study assessed the possibility of using existing datasets to address six policy questions on the demand for a) Healthy Start vouchers b) products supported by Healthy Start as well as breastfeeding and c) other foods.

Following completion of these methods, analysis of the Infant Feeding Survey 2010 (IFS) was added to provide additional data from a UK-wide sample of 15,724 mothers.

Patient and public involvement in the research

Three strategies were used to ensure patient and public involvement. First, the profile of the study team and Project Advisory Group included user representatives and advocates, a co-investigator from an NGO (Food Matters) and a member of an NGO forum. Secondly, individuals who represented and advocated for women participated in the electronic consultation and cross-sectoral workshops. Thirdly, a key informant user panel of six women, who were or had been registered for Healthy Start, contributed their views throughout the life of the project.

¹ Childbearing women is used to mean pregnant women and women who have recently had a baby

Key findings

The systematic review of economic literature concluded that a UK-specific analysis is needed because: evidence of impact of vouchers on fruit, vegetables and milk in the US is mixed or sparse, and non-existent for other products supported by Healthy Start; and, differences in the design of and eligibility for voucher schemes as well as availability and pricing of food between the US and UK challenges transfer of results. No relevant evidence on cost-effectiveness was found.

The enthusiastic engagement of participants and good response rates in this study reflected widespread interest in and support for the Healthy Start scheme. The sample included all the groups we aimed to recruit and therefore is likely to be representative of all the relevant parties. There was a high degree of consensus across the different participants concerning the key issues.

Study participants valued Healthy Start as a scheme that could have an impact on the health of childbearing women and young children under four years old in low-income families. Participants thought it functioned as a nutritional safety net by providing financial support for the purchase of fruit, vegetables, plain cows' milk and infant formula. For Healthy Start to continue to maintain this intended function, the purchasing power of the value of the vouchers relative to the rising cost of food needs to be safeguarded. Women felt that Healthy Start goes some way to meeting its public health aims by increasing the quantity and range of fruit and vegetables in family diets. This impact was reported not only to improve the quality of family diets while receiving Healthy Start vouchers but potentially to establish good habits for the future.

The Healthy Start scheme was perceived to have the potential to improve health outcomes through providing vitamin supplements. A small, but slowly increasing number of women and children were accessing free Healthy Start vitamins. This is testament to the efforts of practitioners to overcome administrative challenges. Many of the participants advocated providing Healthy Start vitamins to all pregnant women and new mothers and children up to five years old and suggested that Healthy Start could be an excellent means to achieve policy recommendations concerning folic acid and vitamin D.

Access to Healthy Start for eligible families is critical to it meeting its policy aims and contributing to reducing health inequalities. Low levels of awareness of Healthy Start among the general population and some groups of eligible families (e.g. women who do not speak English and working families on low incomes) was said to be a barrier to increasing uptake.

Women participating in our study valued the inclusion of infant formula as an item that could be purchased with Healthy Start vouchers. Practitioners suggested that inclusion of infant formula should be clearly signalled as a nutritional safety net.

Neither women nor practitioners associated Healthy Start with early access to health services or with provision of health and lifestyle related information. To achieve this, the Healthy Start scheme probably needs to be more clearly linked to broader nutritional and health policies and campaigns such as reducing obesity, reducing inequalities, Start4Life and Change4Life.

The economic feasibility study found that analysis of several datasets together could provide good complementary evidence of the impact of vouchers on demand for products that are and are not supported by Healthy Start and usefully inform both current policy debates and future primary research.

Recommendations

1. Maintain and develop the Healthy Start voucher scheme. This could include linking the application process to other benefits, speeding up the authorisation of claims; providing application forms in different languages and formats; index-linking the vouchers to the rising prices of Healthy Start goods (fruit, vegetables and plain cows' milk); simplifying eligibility criteria in-line with proposed changes to the benefit system

2. Make vitamin supplements free and universally available for pregnant women, postnatal women and children up to their fifth birthday
3. Develop a communication strategy to increase awareness of the Healthy Start scheme among the general population, eligible families, health professionals and retailers
4. Develop an overarching strategy for vulnerable women to increase engagement with health services accompanied by care pathways and staff training
5. Provide education and training for health and social care practitioners in all sectors and disciplines that encounter pregnant women and young families regarding their role in the Healthy Start scheme
6. Reframe the debate between breastfeeding and formula feeding so that the inclusion of infant formula reflects Healthy Start's aim to provide a nutritional safety net and is not interpreted as a healthy food, and research the impact of use of Healthy Start vouchers on infant feeding decisions
7. Evaluate the costs and effectiveness of the Healthy Start vouchers, including different thresholds for voucher eligibility (age, income), different programme designs (voucher values, electronic cards) and different approaches to increasing the use rate of vouchers,
8. Evaluate the impact of Healthy Start vouchers on the demand for: products supported by Healthy Start vouchers) and breastfeeding as well as other 'healthy' and 'unhealthy' products/activity not supported by the Healthy Start scheme.
9. Investigate variations in use rate of Healthy Start vouchers
10. Improve the quality of existing databases
11. Conduct new primary data collection to inform future analysis of the impact of Healthy Start on breastfeeding and demand for products supported by Healthy Start.

Conclusions and further research

This evaluation has shown that Healthy Start is an important scheme to women, children and their families, and to health and social care practitioners. Healthy Start meets its aim to be a nutritional safety net for low income families by providing a small amount of financial support for the purchase of fruit, vegetables, plain cows' milk and infant formula. Healthy Start has potential to contribute to health outcomes for women and children by increasing the quantity, quality and range of fruit and vegetables consumed, and by establishing good eating habits in early life that might continue through the life-course. These aims could be compromised if the value of the vouchers does not keep pace with the rising cost of food, particularly the cost of fresh fruit and vegetables, or if barriers to access to the scheme for vulnerable families are not addressed.

There is evidence of some tension between the aspiration of the scheme to promote healthy eating and breastfeeding, and the inclusion of infant formula. Most of the participants in this study felt that the inclusion of infant formula was important as a nutritional safety net.

The inclusion of vitamin supplements in the Healthy Start scheme is valued by many health practitioners, who thought it could be an effective strategy to address concerns about vitamin D deficiency. However, as clearly shown in this evaluation, the current processes of vitamin distribution are not working. Free, universal vitamin supplements provided for all pregnant and postnatal mothers, and for children under five was the favoured option for addressing this.

A comparative study is needed to assess the effectiveness and cost-effectiveness of the Healthy Start scheme and its alternative designs in meeting its stated aims and improving health outcomes for women and

children. A cohort study is a potential option for this. A study using UK-specific data is needed and could help determine the impact of Healthy Start on the demand for products supported by Healthy Start. Further topics that research needs to address include the impact of Healthy Start on infant feeding decisions, the cost-effectiveness and acceptability of universal vitamin supplementation of pregnant women, postnatal mothers and children under five and systematic mapping of effective local arrangements for supporting Healthy Start. We recommend that the analysis of Healthy Start within the Infant Feeding Survey is continued and further developed.

CHAPTER 1: BACKGROUND AND CONTEXT

Good nutrition during pregnancy, breastfeeding and early life is vital for the health of women and children. It is important before, during and after childbirth to maintain the mother's health and wellbeing for the sake of herself, her children and family and for the benefit of wider society. Adequate nutrition during pregnancy and breastfeeding optimises health and developmental outcomes for children. Ensuring that women have sufficient income during pregnancy to enable them to maintain a good level of health and nutrition has been suggested to be a key strategy for reducing health inequalities (Marmot et al. 2010). Improving nutrition among low income families helps in the delivery of the Healthy Child Programme (Shribman & Billingham, 2009), Healthy Lives, Brighter Futures (DH and DCSF, 2009), Start4Life (www.nhs.uk/start4life/) and Maternity Matters (DH, 2007) policies, and strengthens implementation of NICE guidance (NICE, 2008). It also contributes to achieving the Marmot recommendations to strengthen public services through equalizing access and outcomes, in partnership with families and communities (Marmot et al. 2010).

However, it is very difficult for low-income families to prioritise spending on healthy food when there are competing priorities. The Family Food Survey 2011 (DEFRA, 2012) found that households in the lowest 20% of income were spending a higher proportion of their incomes on food than in 2007 but were buying less. The lowest income group purchased 15% less fruit and vegetables in 2011 compared to 2007, an average of 2.9 portions per person per day. This compares to an average of four portions of fruit and vegetables per person per day for all UK households. This context suggests that a programme such as the Healthy Start scheme is of increasing importance to low income families as a nutritional safety net and of increasing significance for policy aspirations to improve the health of women and children and to reduce health inequalities.

1.1 The Healthy Start scheme

Healthy Start is a statutory means-tested programme that aims to improve the health of low income childbearing women and children by providing a nutritional safety net for them, promoting healthy eating and breastfeeding, and encouraging access to health professionals early in pregnancy. Women who are at least 10 weeks pregnant and families with children up to their fourth birthday can receive Healthy Start if:

- they receive qualifying welfare benefits (Income Support, income-based Jobseekers' Allowance, or income-related Employment and Support Allowance), or
- they receive qualifying tax credits (Child Tax Credit without Working Tax Credit, or Child Tax Credit with Working Tax Credit run-on) *and* have a household income of £16,190 or less (2012/13), or
- they are pregnant and under 18, irrespective of benefits or tax credits (NHS, 2012).

The Healthy Start scheme provides:

- vouchers which can be exchanged for fresh or frozen fruit and vegetables, plain cows' milk or infant formula. The current voucher value is £3.10. Pregnant women and children between the ages of one and four years receive one voucher per week, and children under one (or within 12 months of EDD if born early) receive two vouchers per week.
- coupons for free vitamin supplements. The Healthy Start vitamin tablets for women contain vitamins C, D and folic acid and the vitamin drops for children contain vitamins A, C and D.

Women can apply for Healthy Start when they are 10 weeks pregnant by completing an application form which must be signed by a registered health professional (midwife, health visitor, nurse or doctor) and posted to the Healthy Start Issuing Unit. The aim of requiring a health professional's signature is to promote early contact with local maternity and child health services to provide an opportunity for health professionals to offer appropriate health, nutrition and lifestyle information. In this way the scheme is intended to link with broader public health priorities. Health professionals are not expected to confirm that the applicant is eligible for Healthy Start (NHS, 2012).

Once a woman's application is accepted [received and validated with HMRC or DWP], vouchers are posted to her every four weeks and must be used within four weeks. Vouchers can be exchanged for allowable goods at retailers that have registered for the scheme, including most large supermarkets and some small retailers and pharmacies. Vitamin coupons are posted every eight weeks and can be exchanged for free Healthy Start vitamins at children's centres, health centres, clinics, community pharmacies or from health professionals, depending on local distribution arrangements. Along with their food vouchers and vitamin coupons, women also receive regular written information about healthy eating and recipe ideas.

1.2 Introduction and uptake of Healthy Start

Healthy Start replaced the Welfare Food scheme, a programme that provided milk tokens and vitamins to low income pregnant women and children under five. Those on the scheme could choose between tokens for seven pints of liquid milk a week (if pregnant or breastfeeding) or higher value tokens for 900g of powdered infant formula to be collected from a child health clinic (if formula feeding a child under one). Following an autumn 2005 pilot in Devon and Cornwall (Hills et al. 2006), the Healthy Start scheme was rolled out across the UK in November 2006. Healthy Start currently supports approximately 600,000 women and children in over 450,000 families in the UK (DH, 2012a) <http://www.dh.gov.uk/health/category/policy-areas/public-health/maternity-public-health/healthystart/>. The claim rate is around 80% of those eligible, in line with the uptake of other means-tested benefits (HMRC, 2012). However, it is likely that the most vulnerable families are among those who do not claim. While approximately 90% of the vouchers were redeemed (c.70% in supermarkets) only 1% of vitamin supplements were claimed (DH 2010).

1.3 Evidence to inform the design of Healthy Start

Evidence from UK studies to inform the design of a national food welfare programme is scarce. Much of the relevant evidence, qualitative and quantitative, is from studies of the Special Supplemental Nutrition Programme for Women, Infants and Children (WIC), a federally-funded US programme (D'Souza et al. 2006). There are, however, important differences both in content and delivery mechanisms (Dyson et al. 2007). Only one study has examined the impact of Healthy Start (Ford et al. 2009; Mouratidou et al. 2010). This Sheffield-based study found that women receiving Healthy Start vouchers ate significantly more fruit and vegetables per day than those on the previous milk-based Welfare Food scheme. Participants were not accessing vitamin supplements, and information on children's intake and qualitative data were not available.

1.4 Economic studies

Research has suggested that vouchers have achieved significant increases in fruit and vegetable consumption among recipients, usually low-income and pregnant women (Vidourek & King, 2008), and potentially served as an important strategy for reducing certain barriers including cost and availability (Burr et al. 2007; Symon & Wrieden, 2003). However, the impact such schemes may have on the choice of non-healthy food is unclear (Alston et al. 2009) as vouchers may displace original spending on fruit and vegetables towards purchase of other products, including non-healthy food. There is some evidence of the cost-benefit of supplemental feeding programmes, although most notably for those without vouchers such as the Expanded Food and Nutrition Education Program that indicates a net present value of between \$150-700 per participant (Burney & Haughton, 2002). To date there has been no systematic review of economic studies on the impact of vouchers within the context of supplementary feeding programmes, and little consideration of either the transferability of existing evidence to England or transferring methods and using English data.

1.5 Surveys commissioned by the Department of Health

The Department of Health (DH) commissioned surveys to evaluate the perceptions, experiences and levels of satisfaction of recipients of the Healthy Start scheme (DH unpublished surveys). A baseline survey of 600 participants was conducted in January 2010 with a follow-up of 1,400 participants in February and March

2011². The surveys used telephone interviews of 18 – 20 minutes duration to gather data. Both surveys found that there was good level of awareness of the scheme and that health professionals were the most important point of contact in encouraging engagement with Healthy Start. The perceptions of recipients of Healthy Start were mainly that it provided financial support rather than creating a sense of partnership with health professionals. There was good awareness of the items that could be bought with Healthy Start vouchers and most recipients thought they were easy to use. Most participants reported using vouchers for allowable goods. Although there had been an increase in those claiming vitamin supplements in the 2011 survey compared to the baseline in 2010, lack of information about vitamin supplements given to women at the initial introduction of Healthy Start remained a problem. Attitudes to information provided through direct mailing were generally positive, with recall high and participants stated that the information was trustworthy and easy to understand. These surveys raised important issues that could be explored in more depth in a qualitative study. It is also important to note that all participants of the surveys were recipients of Healthy Start. It may be important to talk to those who are eligible but not registered for Healthy Start to explore barriers to registration.

The Department of Health also commissioned a survey of retailers which was conducted in October and November 2011 (DH, 2012b). Seventy two members of staff from a range of retailers across England participated. The findings showed generally positive attitudes of retailers towards the Healthy Start scheme. They reported finding it relatively easy to administer. However many retailers reported that with many different voucher/coupon/loyalty schemes operating, Healthy Start was not prominent. Misuse or fraudulent use of vouchers was not perceived to be a significant issue. However some retail staff had misperceptions about the range of goods that could be purchased. This was especially the case with infant formula where many assumed that follow-on infant formula was allowable. Spending less than the full value of the voucher occasionally raised problems for retailers, as change could not be given. The recommendations of this survey included:

- Improve awareness of resources available to retailers which could be used in training and with customers at point of sale
- Continue to update Healthy Start guidance annually and ensure it clarifies technical aspects of the scheme such as, where you can write on the voucher and what security features those at point of sale can use to check vouchers.
- Use the information sent with the vouchers to encourage those using them to organise their shopping in a way that makes it easier for retailers to check their Healthy Start purchases
- Amend the voucher to clarify infant formula milk *suitable from birth*.

1.6 Current challenges

Challenges to the effective and efficient use of Healthy Start include inconsistent uptake of the scheme, lack of information on what vouchers are used for, and whether or not they have a substantive impact on nutritional intake or family finances. Uptake of Healthy Start vitamins is very low. The extent to which different population sub-groups are reached is unknown. Using receipt of benefits and age as the gateways for eligibility may not meet the needs of those on the 'lower slopes of need' (Global Health Equity Group, 2010). Access via health professionals may exclude women who do not attend for antenatal care, who attend late, or who are no longer in regular contact with health professionals. Understanding the problems and identifying effective strategies could significantly improve the implementation of the scheme and help to address inequalities in health.

There are major uncertainties facing the Healthy Start scheme in the next few years. First, the long term economic challenges faced by the UK are likely to have a major impact on the benefits system with implications for the number of families needing financial support and the concurrent issue of defining eligibility. Secondly, there are substantive ongoing and proposed changes to the organisation of health and

² The research team excluded the 3rd follow-up survey conducted in 2012 because it changed significantly in its focus, moving from usage of vouchers to measuring the impact of the information

social care, including the transfer of commissioning of health services from Primary Care Trusts to Clinical Commissioning Groups and the transfer of responsibility for public health from the NHS to Local Authorities. The implications of these changes for Healthy Start are unclear at present.

This study is therefore timely, to examine the current use of Healthy Start and the potential for improving and developing it at a time of uncertainty and change for low income families (Davis et al. 2012).

1.7 Public and patient involvement in this study

There has been public and patient involvement throughout the conception, design, and conduct of this study in accordance with INVOLVE principles (Hanley et al. 2003). Three strategies were used to ensure this involvement.

The first was the profile of the study team and Project Advisory Group which included user perspectives. One of the co-investigators (VW) was from a NGO (Food Matters) working on food policy issues with expertise in food access and participation. Her role was to inform the work about the perspectives of women who were likely to be eligible for Healthy Start, and to conduct much of the direct work with women. One of the collaborators (RM) was a former user representative Chair of the Leeds Maternity Service Liaison Committee, who now works with low-income families and refugees in Leeds. Another (JM) has campaigned for many years for vulnerable families. She was involved in the direct work with women and health practitioners, helped to analyse data and contributed to the drafting of the final report. In addition, the study was guided by a Project Advisory Group that included a representative from the NGO Forum (see Appendix 1 for full list of members of the Project Advisory Group). All will be involved in disseminating the findings and recommendations.

A second strategy was the inclusion of individuals who represented and advocated for women at various stages of the evaluation. How these representatives and advocates contributed their views to the evaluation is detailed in the relevant chapters of the report.

The third strategy was a key informant user panel of women who were or had been registered for Healthy Start that was convened from the outset of the evaluation, and who contributed their views throughout the life of the project. Full details of the key informant user panel are provided in the relevant chapters of this report.

1.8 Terminology used in this report

Throughout this report, we use the term *women* to refer to those who are eligible for Healthy Start, whether they are registered or not, and including those who are 'borderline eligible' i.e. with an income just above the threshold for eligibility. We also use the term *women* to refer to those who took part in the participatory workshops, the focus group discussions with women who did not speak English and the telephone interviews with women from Traveller communities. For ease of reading, we include four men who accompanied their partners to participatory workshops and contributed their views when using the term *women*. Except in the economic feasibility study or when directly quoting others, we avoid the terms *beneficiary* (unborn children and children up to four years old) and *applicant* (individuals who apply for vouchers on behalf of the beneficiaries i.e. carers and parents) as used by the Department of Health and contractors in their data management and information systems.

CHAPTER 2: STUDY AIMS AND OVERVIEW OF METHODS

The main aims of this evaluation of the Healthy Start scheme were to give a real life view of the operation of the scheme within disadvantaged communities, to provide evidence to inform the improved operation of Healthy Start, and to undertake a feasibility study for economic analysis.

2.1 Specific objectives:

1. To review relevant qualitative literature to provide contextual information on food support programmes.
2. To update the existing quantitative review of food support programmes (D'Souza et al. 2006)
3. To review economic literature related to the impact of vouchers within supplementary feeding schemes on the demand for healthy eating and breastfeeding to:
 - a) understand substantive results;
 - b) appraise critically the types of data and range of techniques that could be used to evaluate the impact of Healthy Start on the demand for different foods and other household goods and services in England.
4. To conduct qualitative research to understand:
 - a) operational issues relating to Healthy Start from the perspective of health and other professionals and user and advocacy groups;
 - b) the perspectives and experiences of women from a wide range of relevant groups who use the Healthy Start scheme, including perceived advantages and disadvantages of vouchers, and their impact on buying behaviour and food choices.
5. To review existing national routine databases, Healthy Start datasets and, if possible, data held by leading supermarkets, to judge their relevance to developing explanatory models of a) demand for Healthy Start vouchers and b) demand for products supported by Healthy Start and breastfeeding as well as other household purchases, including non-healthy items.
6. To develop a justified plan for future research on a) the advantages, disadvantages and feasibility of alternative empirical approaches to economic analysis of household demand (expenditure) with a view to evaluating Healthy Start, b) aspects of the operation of the scheme that might need further examination.
7. To synthesise the information gained and to draw on the experience of practitioners and users of the scheme to identify barriers and strategies to improve the operation of Healthy Start; and to develop networks to promote the rapid and effective dissemination of findings that could enhance local operation of the scheme.

Towards the end of the study, an additional component was added at the request of the Department of Health; to examine the data related to Healthy Start from the UK-wide Infant Feeding Survey 2010 (McAndrew et al. 2012), published in November 2012.

2.2 Overview of methods

This study had multiple components to evaluate a complex scheme. Here we provide an overview of the methods used and signpost where in the report details of the methods and findings of each component can be found:

Literature reviews

- a) ***Narrative review of qualitative studies*** to examine women's and practitioners' views and experiences of food support schemes/programmes to identify characteristics likely to enhance effectiveness and inform other components of the study (Chapter 3)

- b) **Update of the Food Support Review** (D'Souza et al. 2006) to provide information on the effectiveness of food support programmes that aim to have an impact on outcomes related to maternal and infant nutrition (Chapter 3).
- c) **Review of economic literature** to address research methods and substantive findings from economic studies of the impact of vouchers in the context of supplementary feeding schemes in low-income families with children below the age of 5 (Chapter 4).

Analysis of Infant Feeding Survey

Analysis of the Infant Feeding Survey 2010 to provide additional data from a UK-wide large sample of mothers (Chapter 3).

Evaluation of the views and experiences of practitioners

- a) **Practitioner focus groups** to find out health practitioners' views of how the Healthy Start scheme is working and how it could be improved and to explore the local contextual factors and issues facing specific population groups that impact on the uptake and effectiveness of Healthy Start (Chapter 5).
- b) **National electronic consultation** to elicit the views of health and social care practitioners, service managers, commissioners, and user and advocacy groups on the advantages and disadvantages of the Healthy Start scheme, operational issues and suggestions for how the scheme could be improved (Chapter 5).

Qualitative evaluation of the views and experiences of women

- a) **Participatory workshops** with women to examine their perspectives and experiences of all aspects of the scheme including perceived advantages and disadvantages of Healthy Start vouchers and their impact on buying behaviour and food choices (Chapter 5).
- b) **Focus group discussions with women who did not speak English** to include the views and experiences of women who did not speak English and who would have found it difficult to take part in the participatory workshops (Chapter 5).
- c) **Telephone interviews with women from Traveller communities** who were unlikely to attend a participatory workshop (Chapter 5).

Key informant user panel

A small panel of women who had experience of Healthy Start met four times during the life of the project to discuss and comment on proposed methods, analysis and dissemination (Chapter 5).

Cross-sectoral workshops

Stakeholders from backgrounds including practitioners, service managers and commissioners, policy makers and advocacy groups attended workshops to add context and explanation to the study recommendations, identifying barriers and positive strategies, and clarifying the most useful economic questions (Chapter 6).

Economic feasibility study

To assess the feasibility of using existing databases to address six policy questions on the demand for a) Healthy Start vouchers b) products supported by Healthy Start as well as breastfeeding and c) other foods. The types of data considered include:

- a) Datasets on Healthy Start held by or for the Department of Health;
- b) Publicly accessible national datasets identified in Dyson et al. (2007);
- c) Commercially available data from supermarkets referenced in Dyson et al. (2007) (Chapter 7).

2.3 Structure of the report

The report is presented in eight chapters. The next two chapters report the methods, findings and discussions of the literature reviews.

Chapter 3 presents details of the narrative review of qualitative studies and the update of the Food Support Review (D'Souza et al. 2006). Chapter 3 also includes a summary of the findings of the Infant Feeding Survey that relate to Healthy Start. This is included in Chapter 3 to add context to the findings of our own empirical work.

Chapter 4 provides details of the systematic review of economic literature.

Chapter 5 presents the components of the study that explored the views and experiences of practitioners and women. Chapter 5 starts with the methods and then presents the findings in nine themes. This chapter also describes the role and contribution of the key informant user panel.

Chapter 6 describes how recommendations for Healthy Start were derived from the findings of the various components of the work and the role of the cross-sectoral workshops in developing and distilling 62 recommendations to a list of priority recommendations. The chapter culminates in seven priority recommendations along with an account of the discussions of attendees at the workshops to give context and explanations for decisions.

Chapter 7 reports the methods and findings of the review of national databases. It concludes with five recommendations for using national databases to assess the impact of Healthy Start vouchers on the demand for fruit, vegetables, vitamins, milk and breastfeeding, and other goods among low income families.

Chapter 8 is the final chapter of this report. It includes discussion of the main findings and the strengths and limitations of the methods, and discusses the findings in a policy context. Chapter 8 ends with the main conclusions of the study and highlights areas for future research.

The study protocol and project plan are contained in Appendix 2.

CHAPTER 3: LITERATURE REVIEWS OF CONTEXTUAL FACTORS AND IMPACT OF FOOD SUPPORT PROGRAMMES

This chapter presents two literature reviews: a narrative qualitative synthesis to examine contextual factors of food programmes and an update of the Food Support Review (D'Souza et al. 2006), a systematic review of controlled studies to assess the impact of food support programmes on health outcomes of mothers and babies. It also includes a summary of the findings of the Infant Feeding Survey 2010 (McAndrew et al. 2012) that are relevant to the Healthy Start scheme.

3.1 Narrative review of qualitative studies

A narrative synthesis of qualitative studies was conducted with the aim of examining women's and practitioners' views and experiences of food support schemes/programmes to identify characteristics, components and contextual factors that might enhance effectiveness in improving the nutrition of disadvantaged childbearing women and young children. Qualitative methods were selected as most likely to provide rich contextual findings of relevance to our own study.

3.1.1 Search strategy

The same search strategy was used for this review and the quantitative update of the Food Support Review described below. Seven key databases (MEDLINE, CINAHL, COCHRANE, EMBASE, PsycINFO, SCI-EXPANDED and SSCI) were searched in January 2011. A range of search terms was used to include women and children as participants and food programmes as the intervention/exposure (see Appendix 3 for the search strategy used in MEDLINE).

3.1.2 Inclusion and exclusion criteria

The review included metasyntheses or primary studies that used qualitative methods or multi-method studies incorporating a qualitative component, to explore the views and experiences of pregnant women or mothers of children under five years old, or health professionals, of food programmes that included food vouchers and/or micronutrient supplementation.

Studies were excluded if they only used quantitative methods, were not primary research studies or metasyntheses, did not include relevant participants, did not address relevant food programmes, or were carried out in a developing country setting that was not applicable to the UK.

3.1.3 Process

Titles and abstracts of search outputs were screened by one reviewer (AM) and a 10% sample screened by a second reviewer (FM). Full papers that met the inclusion criteria or where this was unclear were retrieved. One reviewer screened all papers (AM) and any uncertainties were discussed with the review team (FM, JMG and MJR). Data were extracted from included studies using a pre-designed table by one reviewer (AM) and checked by a second reviewer (FM). As so few studies were found, quality appraisal was not carried out and all relevant studies were included.

3.1.4 Search results

As shown in figure 1 below, from 8258 citations identified by the search strategy, 143 were potentially relevant following screening of abstracts and titles, of which five were selected for inclusion. Studies were excluded because they did not report primary research or a systematic review or metasyntheses (23), did not use qualitative methods (45), did not include a food programme or vouchers or vitamin supplements (63), participants were not childbearing women, children under five years or health professionals (4). Three studies, two in Bangladesh and one in Mexico, were excluded because the setting was felt to be substantively different from the UK.

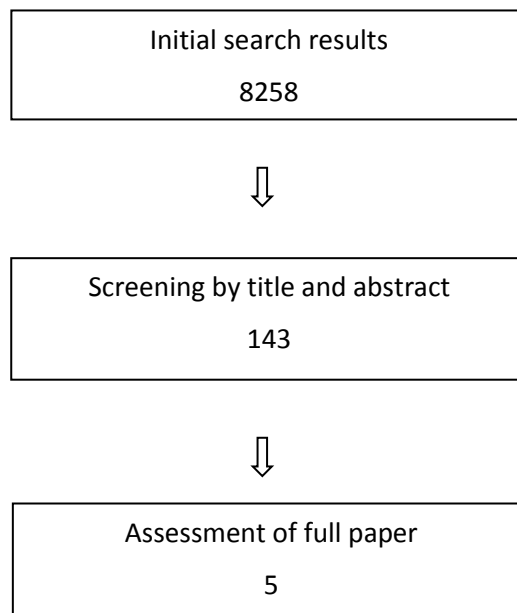


Figure 1: Qualitative review – results of screening

One unpublished report known to the research team from previous work and that met the inclusion criteria (Hills et al. 2006) was included, giving six studies in total (Black et al. 2009; Garton 2008; Grace et al. 2007; Hills et al. 2006; Holmes et al. 2009; Stevens 2010).

3.1.5 Description of the included studies

A summary of the characteristics of the six included studies is provided in Table 1 below. Full details can be found in the data extraction forms in Appendix 3A.

The most striking finding of this review was the dearth of recent qualitative studies examining women's and health professionals' views and experiences of food support schemes/programmes that include vouchers or vitamins supplements. Only two studies were conducted in the UK and concerned Healthy Start (Garton, 2008; Hills et al. 2006). The other four studies were conducted in the US and addressed different aspects of the WIC programme. Due to the significant differences between the US WIC programme and Healthy Start, many of the findings of these studies are not directly relevant to the UK. The description below focuses on findings that are relevant to the UK.

Table 1: Qualitative review – summary of included studies

First author / Year	Participants	Focus of study	Methods	Country
Black et al. 2009	Pregnant women or mothers of a child enrolled in WIC* (up to five years old)	Women's food preferences and views of proposed changes to the WIC food package	Mixed methods Cross-sectional survey and focus groups	US Maryland
Garton, 2008	Health visitors, practice and community nurses	Health practitioners knowledge of vitamin D, child bone health and Healthy Start vitamins	Qualitative Focus groups	UK Setting not reported
Grace et al. 2007	Food stamp recipients. More than half of participants had children under three years old	Food stamp programme – shopping habits and challenges for farmers' markets in attracting and retaining food stamp customers	Mixed methods Interviews including closed and discussion questions	US Oregon
Hills et al. 2006	Seventeen beneficiaries, 34 health professionals, eight providers of other related services and 53 retailers (n=112 participants in case studies)	To demonstrate whether, how and the extent to which Phase 1(2005-6) Healthy Start processes worked smoothly in Devon and Cornwall before the roll-out of the scheme across England, Scotland and Wales	Mixed methods included scoping exercise, review of delivery processes, surveys, collection of comparative data, feedback and reflection as well as case study interviews	UK Devon and Cornwall
Holmes et al. 2009	Breastfeeding mothers enrolled in WIC	Exploration of high rates of formula feeding among WIC recipients and barriers to using the WIC Exclusive Breastfeeding Food Package	Qualitative In depth interviews	US New York
Stevens, 2010	Mothers aged 15-24 years - 85% received external assistance through WIC, food stamps and TANF(Temporary Assistance to Needy Families) Age of children 0-6 years	Factors contributing to food insecurity and strategies used to manage food insecure periods	Mixed methods Cross-sectional survey Qualitative interviews	US Washington state

*The Special Supplemental Nutrition Programme for Women, Infants and Children (WIC) is a US programme that provides fixed value food vouchers which are exchangeable for a food package at participating stores, nutrition counselling and referral to health and social services. Beneficiaries of WIC are pregnant women and mothers and children up to the child's fifth birthday.

UK Studies

A UK multi-method rapid evaluation of the early impact on beneficiaries, health professionals, retailers and contractors of Healthy Start in the first Phase One Start of the scheme in Devon and Cornwall (Hills et al. 2006) included qualitative interviews with beneficiaries and health professionals. From the interviews with beneficiaries the authors concluded that:

- Health professionals should systematically link up with local services to disseminate information about Healthy Start and access beneficiaries to learn about nutrition and diet;
- To reinforce healthy eating messages, health professionals must encourage beneficiaries to take part in relevant practical, experiential activities locally;
- Clearer information about eligibility must be provided particularly for complicated cases where people move on and off benefits;

- To ensure access and choice to retailers, additional information about registered retailers should be provided. For example, make reference to the Healthy Start website in the application leaflet in the “Where can I use vouchers?” section;
- Marketing of what is on offer both about local participating retailers and places to learn about healthy eating, should include providing information in GP surgeries, town halls, libraries etc.;
- Retail staff should be trained to minimise the potential embarrassment or stigma of using Healthy Start vouchers.

From the interviews with health professionals, Hills et al. (2006) recommended that:

- At a strategic level the Department of Health should lead on communications and training strategies to ensure key health professionals, local retailers and other related professionals have good knowledge of Healthy Start;
- At a more practical level the application form needs to state clearly where it should be sent;
- Health professionals need to be able to access supplies of application leaflets and other information about Healthy Start;
- Clarification is needed that it is not necessary that health professionals provide their personal registration number on the application form as long as they provide a surgery stamp or their work address and postcode;
- To ensure that health professionals are aware of the eligibility of all groups, especially the under 18s, the eligibility criteria should be made more explicit in information provided;
- Midwives should routinely use the ‘booking’ appointment to inform women about Healthy Start, as this is an effective way to reach women. This needs to be supported by other means (for example by health visitors) to ensure eligible women do not fall through the gaps.

A small-scale UK study of 22 health visitors and nurses (Garton, 2008) found that while study participants were aware of the Healthy Start scheme they were confused regarding the practicalities of distributing vitamin supplements to women and children. Participants felt that there should be clearer guidelines from the government on how Primary Care Trusts can ensure that Healthy Start vitamins are available at all clinics for mothers and babies.

US studies

Black et al. (2009) examined mothers’ views of changes to the WIC food package. Women said they were pleased that fruit and vegetable vouchers were being added to the WIC food packages and predicted they and their children would consume more fruit and vegetables. Women said they preferred fresh fruit and vegetables but many also consumed frozen and canned. High use of commercial baby foods, including fruit and vegetable based foods among six to eleven month old babies was noted. The researchers suggested food packages should include several choices of foods. This study also included participants’ views of food basket products that are not included in Healthy Start e.g. dairy products, peanut butter and meat.

Grace et al. (2007) explored the challenges faced by farmers’ markets in Oregon, US in attracting and retaining food stamp customers. Participants’ shopping habits were influenced most by cost and convenience and the timing and location of markets were a barrier to their use. The study found that many low-income families would like to increase consumption of fruit and vegetables but barriers cited included cost, lack of time and/or cooking skills. The authors concluded that food stamp customers would benefit from techniques for meal planning, shopping and cooking that take little more time than is currently spent on looking for discounts and preparing pre-packaged foods.

Holmes et al. (2009) explored reasons for high rates of formula supplementation of breastfeeding newborn infants enrolled in WIC and the limited use of the expanded food package for breastfeeding mothers. Mothers who exclusively breastfeed receive additional foods in their food package but do not receive free infant formula. The study found that the provision of infant formula influenced infant feeding decisions of

mothers in the WIC programme. The WIC programme was viewed as supporting breastfeeding but also as encouraging supplementation with infant formula. Women highly valued the provision of free infant formula because it was an expensive product. Mothers were either unaware of the expanded food package or were not interested because it contained foods that they did not like or that were difficult and time consuming to prepare.

Stevens et al. (2010) found that for young single mothers in the US, vouchers were the only means by which they could afford to include fruit and vegetables in their diets. Women reported experiencing food insecurity and food insufficiency from time to time, and described how they prioritised their children's nutrition over their own.

It is difficult to draw conclusions relating to Healthy Start from these small, disparate studies that have addressed widely divergent research questions.

3.2 Update of the Food Support Review

As part of the evaluation of Healthy Start, an existing systematic review of food support programmes by D'Souza et al. (2006) was updated.

3.2.1 Aims and conclusions of the existing review

D'Souza et al. (2006) systematically reviewed the effectiveness and cost effectiveness of food support programmes for low-income and socially disadvantaged childbearing women in developed countries, that aim to have an impact on low birth weight and other outcomes related to maternal and infant nutrition. The review found important gaps in the evidence about process, outcomes, costs and women's views of food support programmes. With reference to their key indicators, the reviewers stated:

- the review does not provide strong enough evidence to support the premise that food support has an impact on health status of babies born to low-income and socially disadvantaged women
- no significant impact was observed on rates of low birth weight;
- there is some evidence that participation in WIC may positively influence birth weights of babies born to smokers;
- important gaps in evidence exist including the long-term outcomes of food support on maternal and child health in current and subsequent pregnancies, the effects of macro and micro nutrient supplementation during pregnancy on key perinatal outcomes and maternal morbidities.

3.2.2 Process

The scope and methods of the systematic review are fully reported in chapter three of D'Souza et al. (2006). For this update, inclusion criteria for participants and settings, types of intervention and study design were unchanged. A study had to report a primary outcome (e.g. mean birth weight, gestational age at birth, pre-term birth, change in maternal weight) to be included in the update; studies reporting only secondary outcomes were excluded.

Full details of the search strategy for MEDLINE, the interface used, database coverage, search date and numbers of records retrieved for the existing review appear in Appendix 1 of D'Souza et al. (2006). For the update, an information officer at the Centre for Reviews and Dissemination (CRD) re-ran the original searches to capture citations added to databases between the previous search (in January 2005) and January 2011.

3.2.3 Results of the search

The results of the electronic search and the numbers of included and excluded studies appear in Table 2 below: Table 2: Food Support Review update - numbers of included and excluded studies

	Food Support Review (D'Souza et al. 2006)	Update (2011)	Total
Number of citations identified through electronic searches and pre-screened	9222	8258	17, 480
Number of papers retrieved and assessed for inclusion	348 (3.8%)	93 (1.1%)	440 (2.5%)
Number of papers identified to consider for inclusion and data extraction (DX)	50 (38 intervention studies and 12 economic studies)	15 (15 intervention studies, no economic studies identified)	65
Included studies	31 (19 intervention studies and 12 economic studies)	5 (7 citations)	36
Studies excluded during data extraction	19	7 (8 citations)	26 (27 citations)
Reasons for exclusion	Design (n=19)	Design (n=1)	20
		No outcomes for our participants of interest (disadvantaged women) (n=7)	7

A list of excluded studies with reasons for exclusion is contained in Appendix 4. Five studies were identified to be included in the update. Brief details of participants, intervention, design and results of these studies appear in Table 3 below. Data extraction forms and details of quality appraisal forms can be found in Appendix 4A

3.2.4 Description of the studies

Table 3: Studies included in the Food Support Review update

	Citation	Participants	Intervention	Design	Results
1	Ford et al. 2009 Mouratidou et al. 2010	UK (Sheffield) Low-income, White British, pregnant and postpartum women	Healthy Start	Before-after N=336 recruited, 86 at 12 weeks	Healthy Start women were more likely to meet the recommended nutrient intakes for iron, folate, calcium and vitamin C. Healthy Start women reported eating significantly more mean portions of fruit and vegetables per day (P=0.004 and P=0.023) respectively. Differences observed at 4 weeks postpartum were sustained at 8 and 12 weeks postpartum.
2	Brough et al. 2010 Participant information from Brough et al. 2009	UK (East London) Disadvantaged pregnant women	Multiple-micronutrient supplementation including 20 mg iron and 400 mcg folic acid vs. placebo	RCT N=402 39% compliance	Nutrient status was measured at recruitment, 26 and 34 weeks gestation Haemoglobin was higher in the group allocated to micronutrients Among N=149 compliers: nutrient levels higher in intervention group; More small for gestational age (SGA) infants in control group (thirteen SGA vs. eight in intervention group, P=0.042).
3	Chan et al. 2006	US (Utah) Healthy adolescent pregnant mothers aged 15-17 and their newborns	From mean gestation 18 weeks to delivery: Orange juice fortified with calcium (four servings, total	RCT N=72	Mothers' serum calcium, phosphate, magnesium and vitamin D at enrolment, 6 months and delivery; there were differences between the groups, but all values were within the normal adult range. Serum calcium and vitamin D from cord blood: vitamin D higher in dairy group.

	Citation	Participants	Intervention	Design	Results
			>1200 mg calcium/day) N=24, vs. Dairy (total >1200 mg calcium/day) N=25, vs. Control N=23		Newborn total body calcium – higher in dairy group Birth weight: infants in the dairy group were heavier, but mean birthweights in all groups were 3.2-3.6kg.
4	Asbee et al. 2008 Asbee et al. 2009	US (North Carolina) Multi-ethnic sample (13% white) pregnant women	An organised, consistent program of dietary and lifestyle counselling (IC) vs. routine prenatal care (RC)	RCT N=100	IC group gained significantly less weight Infant weight not reported by intervention group
5	Thornton, 2009	US (New York & New Jersey) Pregnant women with pre-pregnancy BMI >30 kg/m ² Multi-ethnic sample (22% white)	Intervention group (monitored) (n = 116); prescribed a balanced nutritional regimen; asked to record all foods eaten each day Control group (unmonitored) (n = 116); conventional prenatal dietary management.	RCT N=257 (232 in results)	Intervention group gained significantly less weight from baseline to last weight before delivery Birthweight>4500g/ 10 lbs (macrosomia) Intervention group 4/116 Control group 9/116 p=0.153 Note study was not powered for birthweight outcomes

Following this update, with regard to the conclusions of the food support review (D'Souza et al. 2006), important gaps in the evidence remain. The updated review still does not provide strong enough evidence to support the premise that food support in the form of vouchers or food packages has an impact on the health status of babies born to low-income and socially disadvantaged women, and did not find any significant impact on rates of low birth weight. It found little information on costs, women's views or process outcomes of food support programmes for low-income and socially disadvantaged childbearing women in developed countries, particularly those from very marginalised groups. However, the five studies identified for the update do not change the main positive finding of the existing review; that participation in WIC may positively influence birth weights of babies born to smokers.

Of the five included studies, two were conducted in the UK (Ford et al. 2009/Mouratidou et al. 2010; Brough et al. 2010) and one of these directly concerned Healthy Start (Ford et al. 2009/Mouratidou et al. 2010). The other three studies were conducted in the US and addressed nutrient intake from foods (Chan et al. 2006) and management of weight gain in pregnancy (Asbee et al. 2009; Thornton, 2009) as shown in Table 3. Due to the differences between Healthy Start and the interventions in the three US studies, many of their findings are not directly relevant to Healthy Start. The list below identifies the findings most relevant to Healthy Start as well as indicating findings that are not relevant to Healthy Start or the UK.

Findings most relevant to Healthy Start

Ford et al. (2009) and Mouratidou et al. (2010) examined the effect of the Healthy Start scheme on dietary intakes and eating patterns of low-income, white British, pregnant and postpartum women living in Sheffield (UK). They found that, after controlling for education and age:

- Pregnant and 4-weeks postpartum women who were claiming Healthy Start vouchers reported significantly higher energy and nutrient intakes (calcium, folate, iron and vitamin C) than the earlier group of women on the Welfare Food scheme;
- Women receiving Healthy Start vouchers ate significantly more mean portions of fruit and vegetables per day;
- None of the pregnant or postpartum Healthy Start group had been supplied with Healthy Start vitamin supplements.

A randomised, double-blind, placebo-controlled trial of the efficacy of multiple-micronutrient supplementation including 20 mg iron and 400 mcg folic acid, among pregnant women in East London, UK (Brough et al. 2009; Brough et al. 2010) found:

- Baseline micronutrient deficiencies were common among this low-income, ethnically diverse population;
- Only 39% of women completed the study; reasons for stopping taking the tablets are reported by group, and rates of non-compliance were similar in both groups. However, intention-to-treat analysis showed that participants in the treatment group had higher mean haemoglobin and higher packed cell volume concentrations at 26 and 34 weeks of gestation compared with controls.

The authors concluded that multiple-micronutrient supplements from early pregnancy may be beneficial and recommended larger studies to assess impact on birth outcomes and infant development.

A US trial with teenage mothers (Chan et al. 2006) examined the effects and acceptability of dietary calcium supplements in orange juice or in dairy products compared to controls (usual diet). The effects of this small-scale study are unclear. Findings most relevant to Healthy Start relate to the acceptability of any dietary intervention in pregnancy. The protocol was changed when the mothers in the orange juice plus calcium group could not comply with consuming four servings of orange juice fortified with calcium. The authors concluded:

- Many pregnant women throughout the world experience nausea, vomiting and appetites for unusual foods and/or non-foods, and these experiences are likely to have a strong effect on their nutrition and nutritional choices.

Findings not relevant to Healthy Start or the UK

The focus of the two remaining US studies was management of weight gain in pregnancy. Whilst this is an issue of growing importance in the UK and may form part of a woman's maternity care plan, it is not a focus of the current Healthy Start scheme.

A US trial with a diverse ethnic sample (Asbee et al. 2009) studied the effects of a programme of dietary and lifestyle counselling on maternal weight gain during pregnancy. This small study focused on reducing overweight and obesity and found the intervention group gained significantly less weight in pregnancy. The researchers recommended counselling all pregnant women, especially heavier nulliparous women who in this study gained most weight, on the importance of diet and lifestyle in weight management in pregnancy. However, the study lacked statistical power to support this common-sense recommendation.

A US trial with obese pregnant women (Thornton, 2009) aimed to study the effects of a dietary counselling programme on rates of macrosomia (birthweight >4500g/ 10 lbs) but again, was not powered to measure this outcome.

3.3 Infant Feeding Survey 2010

3.3.1 Outline of methods of the Infant Feeding Survey

Surveys of infant feeding practices in the UK have been conducted every five years since 1975. The purpose of the Infant Feeding Surveys is to provide data on the incidence, prevalence, and duration of breastfeeding as well as other feeding practices used by mothers during the initial eight to ten months after giving birth. The 2010 survey (McAndrew et al. 2012) which for the first time included questions about Healthy Start, was published in November 2012. The survey included an unclustered sample of 30,760 births. Mothers from the most deprived quintile of the Multiple Index of Deprivation were over-sampled to adjust for a predicted lower response rate from lower socio-economic groups. Over-sampling of mothers living in the most deprived areas, however, occurred only in England and Scotland. All births in Wales and Northern Ireland were sampled. The source of the sample was registered births between August and October 2010.

The longitudinal survey was conducted in three stages; stage one when the babies were six weeks old, stage two when the babies were around four to six months old and stage three when the babies were around eight to ten months old. Data were collected for stage one from September to December 2010, stage two from January to April 2011 and stage three from May to August 2011. In this chapter, the findings of the Infant Feeding Survey 2010 that are relevant to the Healthy Start scheme are summarised. Assessment of the feasibility of using the Infant Feeding Survey data in economic analysis of Healthy Start can be found in Chapter seven.

3.3.2 Summary of findings relevant to Healthy Start

A total of 15,724 mothers returned the stage one questionnaire, 12,565 mothers completed the stage two questionnaire and 10,768 mothers returned the stage three questionnaire.

Eligibility for Healthy Start

At each stage of the survey, the questionnaire included a description of the Healthy Start scheme, including the eligibility criteria. Mothers were asked if they thought they were eligible based on the criteria. At stage one, 24% of mothers thought that they were eligible for Healthy Start and 13% were unsure. At stages two and three the respective proportions were 23% and 22% thought they were eligible and 10% and 9% were unsure. Young mothers (77% of those age under 20), and those who had never worked (60%) were most likely to say they thought they were eligible. In terms of ethnicity, black mothers (39%) were more likely to report that they were eligible than other ethnic groups.

Registration and awareness of Healthy Start

Almost 60% of mothers who thought they were eligible but were not registered for Healthy Start, were not aware of Healthy Start prior to taking part in the Infant Feeding Survey. Awareness of the scheme among those who thought they were eligible was lowest among those aged over 30 and those in managerial and professional occupations. Mothers who were aware of Healthy Start prior to participating in the Infant Feeding Survey were most likely to have received information from a midwife. Other sources of information included health visitors, family or friends or benefits /Job Centre Plus offices.

Fifty eight percent of mothers who thought they were eligible were registered for Healthy Start. Young mothers (70% of those aged under 20 who were eligible) and those who had never worked (74% of those eligible) were most likely to be registered. Although black mothers were the most likely to think they were eligible, levels of registration were similar to the average (57% and 58% respectively).

Using Healthy Start vouchers

Mothers who were registered for Healthy Start and had used their vouchers to buy fruit or vegetables, gave their children fruit and vegetables more frequently than those registered on the scheme who had not used their vouchers for this purpose (88% compared with 80% for fruit; 87% compared with 81% for vegetables). This suggests that in families who are registered for Healthy Start, the use of Healthy Start vouchers to buy fresh fruit and vegetables increases babies' access to these foods.

At stages one and two of the survey about 15% of mothers registered for Healthy Start said that they had not used any Healthy Start vouchers to buy fresh fruit, vegetables, milk or infant formula since the birth of their baby. At stage three, 18% had not used any vouchers since they completed the stage two questionnaire. However at stage one, 68% of mothers who had not used any vouchers since the birth of their baby reported that this was because they had not received any vouchers or were waiting to receive vouchers. Other reasons given for not spending vouchers included needing more information about Healthy Start (6%), vouchers sent very early (6%) and that it was not convenient to use the vouchers (3%). At all stages, about 70% of mothers registered for Healthy Start reported that infant formula was the main item that they bought with their vouchers. At stage one, this was followed by fresh fruit (52%), fresh vegetables (47%) and plain cows' milk (43%). There was an increase in the use of vouchers to buy fresh fruit and vegetables by stage three.

Healthy Start vitamin supplements

Three percent of mothers said they had taken Healthy Start vitamin supplements and a further three percent had taken vitamin D supplements during pregnancy. At stage one, breastfeeding mothers who were registered for Healthy Start were less likely to say they were taking vitamin supplements than breastfeeding mothers who were not registered. Fewer mothers reported giving vitamin supplements to their children than said they were taking vitamin supplements themselves.

Mothers who were registered with Healthy Start were more likely to be giving their babies vitamin supplements than those who were not registered. Thirteen percent of mothers who were registered with Healthy Start were giving their babies vitamin drops at stage two, compared to eight percent of those who were not registered. At stages one and two, about 30% of mothers who were giving their babies vitamin drops obtained free vitamins for their children through Healthy Start and a similar proportion obtained them on prescription. The older the baby, the more likely it was that the mother bought vitamin drops. At stage three, three percent of mothers registered with Healthy Start bought Healthy Start vitamin supplements and fourteen percent of mothers registered with Healthy Start had bought vitamin supplements from a retailer.

Healthy Start and infant feeding

Only 59% of mothers registered for Healthy Start breastfed initially compared to 81% of the whole sample, 71% among those who had never worked and 76% of those who thought they were eligible but were not registered. At six weeks, 32% of mothers registered for Healthy Start were still breastfeeding (compared with 55% for the whole sample and 45% for mothers who had never worked) and at six months, 18% of mothers who were registered for Healthy Start were breastfeeding (compared with 34% for the whole sample and 31% of mothers who had never worked).

3.4 Discussion

The most striking finding of the review of qualitative studies was the dearth of evidence of women's or practitioners' views of participating in food support programmes. This suggests that our evaluation is timely and adds valuable findings to the evidence-base. The evaluation of the pilot of Healthy Start conducted in Devon and Cornwall (Hills et al. 2006) provided practical recommendations for improving the access, reach and administrative efficiency of Healthy Start. Our study addresses whether these recommendations have been implemented and if so, whether they have achieved the desired outcomes. The only other qualitative UK study (Garton, 2008) found that health visitors were confused about the arrangements for distribution of

Healthy Start vitamins. This could explain the findings of the before and after study of Healthy Start (Ford et al. 2009; Mouratidou et al. 2010) that women were not accessing vitamin supplements. The same study (Ford et al. 2009; Mouratidou et al. 2010) had promising findings that, compared to the previous Welfare Food scheme, women in receipt of Healthy Start vouchers were more likely to meet the recommended nutrient intakes for iron, folate, calcium and vitamin C. and reported eating significantly more mean portions of fruit and vegetables per day.

It is difficult to draw any conclusions from the qualitative studies of WIC but they raised interesting questions for examination in a UK setting, such as the influence of including infant formula as a Healthy Start item on infant feeding decisions (Holmes et al. 2009), whether market stalls are a valued option for women to spend their Healthy Start vouchers (Grace et al. 2007) and the importance of Healthy Start vouchers to sub-groups of participants such as young mothers (Stevens, 2010). The update of the Food Support review does not provide strong enough evidence to support the premise that food support in the form of vouchers or food packages has an impact on the health status of babies born to low-income and socially disadvantaged women, and did not find any significant impact on rates of low birth weight.

The Infant Feeding Survey 2010 (McAndrew et al. 2012) is the first study of a large representative sample of women in the UK (10,768 mothers completed all three stages) that included questions about Healthy Start. Issues of concern from this survey that are also relevant for our study included: reasons why eligible mothers were not registered for Healthy Start; that infant formula was the main item bought by 68% of mothers when their babies were six weeks old; the low uptake of vitamin supplements, and the low rates of breastfeeding at all time points for mothers registered for Healthy Start compared to those who thought they were eligible but were not registered.

CHAPTER 4: REVIEW OF ECONOMIC LITERATURE

4.1 Methods

4.1.1 Aim

This systematic review summarises and explores economic studies of voucher-based supplementary feeding schemes in low-income families with children below the age of five years. The objectives were: a) to examine the association between participation in voucher schemes and the demand for products i) supported by Healthy Start ii) not supported by Healthy Start (including 'healthy' (e.g. chicken) and 'unhealthy' (e.g. cakes) food; b) to summarise findings on cost-benefit/effectiveness analysis with respect to impact of vouchers and c) to appraise the methods used. A glossary of terms used in this review can be found in Appendix 5.

4.1.2 Search strategy

Five data bases covering published peer-reviewed papers and work in progress were searched: MEDLINE (1948-present); Econlit (1969–Jan 2011); Social Sciences Citation Index (SSCI) (1956-present); Repec: Research Papers in Economics (<http://repec.org/>) (1950-present); and NBER: the National Bureau of Economic Research (<http://www.nber.org/>) (1973-present). Searches were limited to English-language studies only. Search terms were developed around the language of vouchers (linked to food), general and specific food supplementation programmes, and the terms used in the Food Support Review (D'Souza et al. 2006) for vitamin, milk and infant feeding. Search strategies were undertaken first in MEDLINE and SSCI by an Information Officer from the Centre for Reviews and Dissemination, and replicated, as far as possible, in the other search engines. Full details of searches are given in Appendix 6.

4.1.3 Selection process

For entry into the literature review, studies had to fulfil all the following criteria:

- *Either* examine the demand and/or effect size of voucher-based interventions on the demand for food, milk, breastfeeding and/or vitamins *or* examine the cost/cost-effectiveness/benefit of the same type of voucher-based interventions;
- Focus on food-related voucher scheme(s) connected with welfare programs;
- Include families with children below the age of five;
- Use primary or secondary data (reviews were included only as a tool to search for further references);
- Dated from 1950 onwards;
- The population was low-income households and/or immigrants.
- From high income countries

Studies were not eligible if any of the following applied:

- Outcome measures of analysis focussed only on health effects (e.g. food intake, calorie intake, nutrient intake, obesity etc.);
- The study population focussed on adults without considering children, as this population is not eligible for Healthy Start vouchers;
- Analysis was limited to descriptive statistics only;
- The population under investigation were not eligible for Healthy Start e.g. refugees, asylum seekers;
- MSc theses, as these are not subject to peer review and revision.

Two reviewers (MD, JFR) independently screened all titles and abstracts of identified records. Any disagreements were resolved by consensus. Full papers were downloaded/ordered and assessed for inclusion by two reviewers (MD, JFR).

4.1.4 *Methods of review*

Data were extracted from studies using predefined questions on context of study, study design, methods of analysis, a quality review, main findings, and author stated challenges (see Appendix 7). A quality rating of each study, using a checklist used by the Canadian Council for Learning 2009, rated three aspects of quality (data, model and results) (see Appendix 8 for details). Data were extracted independently by pairs of reviewers (MD, JFR, SP) and any disagreements were resolved through discussion.

4.2 **Results**

4.2.1 *Selection and quality of papers*

Some 12,909 titles/abstracts were screened (most were related to nutrition but not food support) and 1,237 potentially relevant studies retrieved. Of these 1,199 papers were excluded because they were: not part of a food voucher scheme; did not report demand for food; or were not targeted at low-income families. Thirty three papers were identified for full review but, during the process of data extraction, this was reduced to nine. Appendix 9 gives the reasons for their rejection. The nine papers fully reviewed are listed in Appendix 10. Appendix 11 shows the quality scores attributed to the nine empirical studies. Two studies were judged to be of 'good' quality (Kaushal & Gao, 2010; Salathe, 1980), one of 'poor' quality (Reed & Levedahl, 2010) and the rest of 'fair' quality (see Appendix 11 for full details). No papers on cost-effectiveness/benefit were selected because none reported the impact on food consumption.

4.2.2 *Aims and characteristics of included studies*

The selected papers cluster into three time periods; four from 1979-1982, one from 1990 and four from 2001-2011. All come from the US. The voucher scheme most frequently examined is the Food Stamp Program (FSP) or its replacement, the Supplemental Nutrition Assistance Program (SNAP), which was evaluated in every paper, either alone, with WIC (Arcia et al. 1990; Lanfranco et al. 2001) or with WIC and the Expanded Food and Nutrition Education Programme (EFNEP)³ (Davis & Neenan, 1979)⁴.

Tables 4 and 5 summarise the aims and characteristics of studies (see Appendix 12 for full details of data extracted). The main aims were to consider the impact of the voucher-based programmes on either food expenditure or nutrient intake and occasionally on specific food purchases within households. One study looked at market areas (Binkley & Eales, 2002) and one focussed on individual women (Arcia et al. 1990). The secondary aims of papers were focussed on socio-economic and demographic factors that explain variation in food expenditure or nutrient intake, sub-group analysis (e.g. female headed households) as well as policy advice.

Low income families were the population of interest in six papers (Arcia et al. 1990; Chavas & Yeung, 1982; Davis & Neenan, 1979; Huang et al. 1981; Kaushal & Gao, 2010; Salathe, 1980). Two papers had unspecified population groups (Binkley & Eales, 2002; Reed & Levedahl, 2010) and Lanfranco et al. (2010) focussed on a Hispanic population. Average household size varied between 2.25-4 people per family.

Five papers had a sample size less than 1000, three papers had more than 1000 (Reed & Levedahl, 2010 did not specify a sample size). Studies which used data from the Consumer Expenditure Survey for a one year period (i.e. Chavas & Yeung, 1982; Huang et al. 1981) reported sample sizes less than 1000 whereas studies using the same dataset over longer time periods (Kaushal & Gao, 2010) had samples of up to 7,500 households.

³ Although note that the EFNEP does not itself have a voucher component.

⁴ The FSP/SNAP programme supports low or no income families with vouchers (now electronically) that can be used to purchase any pre-packaged edible foods, regardless of nutritional value. In WIC there is a considerable degree of variation in allowable foods by State but they include, for example; fruit and vegetables, cereals, infant formula, juice, eggs, canned fish, cheese, bread and other whole grains, peanut butter, and medical foods.

Of the nine papers reviewed, the majority (6/9) included vegetables as a single category in the analysis and three papers combined fruits and vegetables (see Table 5). Five papers included 'dairy products' and, as it was not possible to see the effect of 'milk' only, this category was not pursued further. Only one paper (Lanfranco et al. 2001) analysed milk as a separate category. No paper considered vitamins and none considered breastfeeding.

Food diaries were the main source of data collection (7/9 papers), with others (Binkley & Eales, 2002; Kaushal & Gao, 2010) sourcing data from administrative records. Diary surveys were conducted during two one-week periods in Chavas and Yeung (1982), one week in Arcia et al. (1990), one year (Huang et al. 1981), two one-year periods in Salathe (1980), and two years (Kaushal & Gao, 2010; Lanfranco et al. 2001). Only one study (Reed & Levedahl, 2010) used time series data, covering a period of 26 years.

Seven papers reported eligibility/selection criteria for household participation in the analysis. Three include populations based on voucher participation (Arcia et al. 1990; Binkley & Eales, 2002; Salathe, 1980). Four mentioned socio-economic characteristics i.e. ethnicity (Lanfranco et al. 2001), family composition (Kaushal & Gao, 2010) or demographic characteristics i.e. location (Chavas & Yeung 1982 and Davis & Neenan 1979). Neither Reed and Levedahl (2010) nor Huang et al. (1981) reported selection criteria.

Table 4: Aims and study characteristics

Paper	Primary Aim	Secondary Aim	Inclusion/exclusion criteria	Sample characteristics	Time	Data source (and type)
Lanfranco et al. 2001	Analyse the demand for nine main food categories among a Hispanic population in the US	Determine the extent to which government income transfer programs influence household's demand for targeted food groups.	Include only households of Hispanic origin	Sample size: 643 households Average age of household head: 41 Gender: men (62%) Ethnicity: Mexican (44%), Puerto Rican (11%), Cuban (3%) other Hispanic (43%) Average household size: 4 Employed: 54%	1994-96	USDA Continuing Survey of Food Intakes by Individuals (CSFII 94-96) (Cross-sectional surveys)
Arcia et al. 1990	Analyse the effects of WIC participation on expenditure and consumption patterns of household participants	n/a	Nationally representative probability sample of pregnant women enrolled in WIC and non-WIC pregnant women.	<i>Recall study:</i> Sample: 4,219 WIC and 785 non-WIC women WIC = Whites 49%, Blacks 31%, Hispanics 18% Non-WIC = Whites 57%, Blacks 19%, Hispanics 21%	1983	Longitudinal Study of Pregnant Women -part of the National WIC evaluation study. (Longitudinal survey & diary data)
				<i>Diary study:</i> Sample: 1,031 WIC and 551 non-WIC women WIC = Whites 51%, Blacks 21%, Hispanics 19% Non-WIC = Whites 57%, Blacks 18%, Hispanics 23%	1983	
Chavas & Yeung 1982	Examine the influence of participation in the FSP on the food consumption of low income households in the Southern region of the United States	Examine the impact of selected socio-demographic factors on food-expenditures for low income households	Southern region is included based on the poverty level and earlier research that food consumption behaviour in the South differs from that in the rest of the country.	Sample size ₁ : 118 households (FSP participants) Sample size ₂ : 549 households (non-FSP participants) Household (HH) size: 2.91 (FSP participants) 2.25 (non-FSP participants)	1972-73	Consumer Expenditure Survey (Diary data)
Salathe 1980	Assess how food stamp recipients use their buying power for food compared with low income households who do not participate in FSP	Provide a base for assessing the impact of removing the purchase requirement	Group 1: participants in FSP who provided all information on value of food coupons received or paid for as well as before tax income in previous year showing that it exceeded twice the maximum income eligibility criteria during 1973-74 Group 2: Subsample of those not on FSP who had incomes similar to FSP participants (i.e. eligible non-participants)	FSP group: Sample size: 557 Age: 24% <10, 19% >65 Ethnicity: 40% HH black Average weekly per capita before tax income = \$24.2 HH size = 3.4 Eligible non-participants group: Sample size: 1,697 Age: 14% <10, 32% >65 Ethnicity: 20% black HH Average weekly per capita before tax income = \$27.23 HH size = 2.87	1973-74	1972-74 Bureau of Labour Statistics (BLS) Consumer Expenditure Diary Survey (CEDS). (Diary data)

Paper	Primary Aim	Secondary Aim	Inclusion/exclusion criteria	Sample characteristics	Time	Data source (and type)
Reed & Levedahl 2010	Provide estimates for market demand responses to SNAP benefits based on a model that aggregates over all households and that allows for nonlinear household Engel curves.	n/a	not stated	not stated	1980-2006	Consumer Expenditure Survey US Census Bureau(Diary data)
Kaushal & Gao 2010	Investigate whether changes in the FSP caseload, resulting from social policy changes, influence food expenditures in low-income families and participation in the FSP	Examine food spending patterns of FSP eligible non-participant families headed by low-educated single mothers	Include: single-mother families If mother's age is 18-54 and with high school or lower education, families with children, 9 main categories of food.	Sample size: 7500 family units in a household sampled each year in CES Age: 18-54 years old (mothers)	1994-2004	Consumer Expenditure Diary Survey US Bureau of Labour statistics US Bureau of Economic Analysis (Administrative records & diary data)
Davis & Neenan 1979	Identify selected food group and corresponding nutrient intake responses associated with participation in the FSP and EFNEP	Simulate the nutritional impact of alternative policy mechanisms with joint FSP and EFNEP participation and	Include: high-poverty rural area	Sample size: 228 families	1976	EFNEP records(Diary data)
Huang et al. 1981	Refine the theoretical framework and its application to analyse the effect of participation in the previous FSP on low income households' food purchasing patterns.	Explore demographic and socioeconomic factors that can explain program participation	not stated	Sample size ₁ : 309 (full- FSP participants) Sample size ₂ : 199 (partial- FSP participants) Sample size ₃ : 2,441 (eligible non- FSP participants) Ethnicity (white): 61.81% (full- FSP participants) 57.79% (partial- FSP participants) 84.64 % (non- FSP participants) HH size: 3.19 (full- FSP participants) 3.26 (partial- FSP participants) 2.86 (eligible non- FSP participants) Urban population: 61% (full- and partial- FSP participants) 48.63(eligible non- FSP participants)	1972-73	Consumer Expenditure Diary Survey(Diary data)

Paper	Primary Aim	Secondary Aim	Inclusion/exclusion criteria	Sample characteristics	Time	Data source (and type)
Binkley & Eales 2002	Estimate the effect of food stamps on sales across specific grocery products by: (a) Examining whether differences in food stamp usage across market areas alters the sales shares of grocery products (b) Separating the effects of poverty and food stamps	Assess the potential usefulness of data at the market level in addressing problems with survey data	Participation in Food Stamps	Sample size: 54 marketing areas	1980-1991	Sales Area marketing Inc & USDA (Administrative records)

Table 5: Types of goods supported by Healthy Start considered in included papers (n=9)

Study characteristics	N	Papers
Vegetables (separate category)	6	Lanfranco et al. 2001; Chavas & Yeung, 1982; Reed & Levedahl, 2010; Binkley & Eales, 2002; Arcia et al. 1990; Salathe, 1980
Fruits (separate category)	3	Chavas & Yeung, 1982; Reed & Levedahl, 2010; Salathe, 1980
Milk (separate category)	1	Lanfranco et al. 2001
Dairy products	5	Chavas & Yeung, 1982; Huang et al. 1981; Davis & Neenan, 1979; Salathe, 1980; Kaushal & Gao, 2010
Fruits and vegetables (single category)	3	Huang et al. 1981; Davis & Neenan, 1979; Kaushal & Gao, 2010
WIC-type food (single category)	1	Arcia et al. 1990

4.2.3 Analytic approaches

Two conceptual frameworks were used to justify the analytic approaches adopted: indifference curves, and Engel's law. Huang et al. (1981) used 'indifference curves' (which underlie consumer demand theory) to represent the effect of the FSP on household food purchases. Since food stamps are in-kind 'transfer' income, participation in the FSP affects the household's budget and budget allocation. The impact is divided into two components; substitution effects (due to change in the relative price of food to non-food) and income effects. They argued that empirical models that do not distinguish these different effects are likely to measure the impact of the FSP subsidy inaccurately.

Engel's law states that low-income consumers spend a larger share of their budgets on food compared with high-income consumers. This is the basis of some models that examine the FSP/SNAP (Chavas & Yeung, 1982; Lanfranco et al. 2001; Reed & Levedahl, 2010). Social transfer programs that increase incomes of low-income households will increase purchase of food more, relative to increasing income of high income earners by the same amount *assuming all other things are equal*. Increasing the ability of families to purchase basic necessities improves their welfare. This relationship is specified through a consumption model. The remaining papers do not mention a conceptual framework, although they will be working in the context of Engel's law because it specifies the relationship between a consumer's money income and expenditure on food.

Table 6 summarises the statistical methods used. Ordinary least squares (OLS) or its variant was used in the majority of papers (6/9). Other regression models included: a sample selection model (Lanfranco et al. 2001); censored regression (Huang et al. 1981; Lanfranco et al. 2001); seemingly unrelated regression (Chavas & Yeung, 1982); and the Almost Ideal Demand System (Reed & Levedahl, 2010).

Table 7 summarises the variables included by the nine papers. The main effects examined were whether receipt of (or participation in) Food Stamps, as a binary independent variable, affect consumption of fruits/vegetables/milk (7/9), followed by income effects on food consumption (5/9). Two papers each investigated whether the bonus value of Food Stamps (Chavas & Yeung, 1982; Huang et al. 1981) or participation in WIC (Arcia et al. 1990; Lanfranco et al. 2001) have any effect in terms of increased consumption of food items. Most (6/9) papers reported regression coefficients to indicate the magnitude and direction of main effects. Three papers each reported elasticity and marginal propensity to spend. Two studies reported predicted probability of actual purchase (Huang et al. 1981 and Salathe, 1980).

Table 6: Description of analytical methods used by the included papers (n=9)

Method characteristics	N	Papers
<i>Type of econometric models used</i>		
Ordinary Least Squares (unadjusted or adjusted) including 2-part models	6	(Lanfranco et al. 2001; Davis & Neenan, 1979; Binkley & Eales, 2002; Arcia et al. 1990; Salathe, 1980; Kaushal & Gao, 2010)
Sample selection (e.g. Heckman-type)	1	(Lanfranco et al. 2001)
Censored regression (e.g. Tobit)	2	(Huang et al. 1981; Lanfranco et al. 2001)
Seemingly unrelated regression	1	(Chavas & Yeung, 1982)
Almost ideal demand system	1	(Reed & Levedahl, 2010)
<i>Main effects examined</i>		
Receipt of Food Stamps	6	(Arcia et al. 1990; Binkley & Eales, 2002; Huang et al. 1981; Kaushal & Gao, 2010; Lanfranco et al. 2001; Reed & Levedahl, 2010)
Bonus value of Food Stamps	2	(Chavas & Yeung, 1982; Huang et al. 1981)
Participation in WIC	2	(Arcia et al. 1990; Lanfranco et al. 2001)
Income (specified by time, e.g. weekly at family or individual levels)	6	(Arcia et al. 1990; Binkley & Eales, 2002; Chavas & Yeung, 1982; Huang et al. 1981; Kaushal & Gao, 2010; Lanfranco et al. 2001)
<i>Indicators of effect size</i>		
Regression coefficients	6	(Arcia et al. 1990; Binkley & Eales, 2002; Chavas & Yeung, 1982; Huang et al. 1981; Kaushal & Gao, 2010; Lanfranco et al. 2001)
Elasticity	3	(Huang et al. 1981; Lanfranco et al. 2001; Reed & Levedahl, 2010)
Marginal propensity to spend	3	(Chavas & Yeung, 1982; Reed & Levedahl, 2010; Davis & Neenan, 1979)
Predicted probability of actual purchase	2	(Huang et al. 1981; Salathe, 1980)

The dependent variables (i.e. consumption of fruits/vegetables/milk) were specified differently. Table 7 shows that Lanfranco et al. (2010) was the only paper to specify the dependent variable in terms of quantity consumed. The other papers used various monetary units: average (family) expenditure on food items in a specified period such as a week or month (4/9), per capita spending on food items (3/9) or budget share of food items (Reed & Levedahl, 2010). All papers evaluated the impact of Food Stamp receipt (or participation in Food Stamp programme) on the demand for fruits/vegetables/milk while two papers (Arcia et al. 1990; Lanfranco et al. 2001) also looked at the impact of WIC on those food items.

The majority of papers (6/9) used income (mostly at a family level), household characteristics (e.g. household size, age/gender/education of household head) and race/ethnicity or national origin as control variables (see Table 7). Only two papers included characteristics of mothers such as their age and education (Kaushal & Gao, 2010; Salathe, 1980). Variation in geographic regions were considered by four papers while rural/urban setting was included by three papers. Macro-level characteristics such as unemployment rate was included by two papers (Binkley & Eales, 2002; Kaushal & Gao, 2010).

The specification of variables differed across studies. For example, income was specified as:

- income per month including the sum of earnings for all household members, welfare payments, pensions and social security (Davis & Neenan, 1979); total family income (Chavas & Yeung, 1982)
- natural log of total before tax income of the household (Salathe, 1980)
- weekly income (Lanfranco et al. 2001)
- average per capita income (Binkley & Eales, 2002)

- monthly household income from wages and non-wages (Arcia et al. 1990)
- before tax income and transfers. Kaushal and Gao (2010) excluded any FSP benefits or income of both full participants and eligible non-participant households in FSP as well as the income of partial FSP participants, because they assumed that the first two groups behave the same under the Engel curve theory
- cash income and SNAP benefits (Reed & Levedahl, 2010).

Education is another variable defined differently between studies. It was defined as either a binary variable e.g. college education or other (Chavas & Yeung, 1982), “less than grade 9”/“grade 9-12” (Davis & Neenan, 1979) or as a categorical variable e.g. elementary school, high school, junior high school, post high school (Arcia et al. 1990) or as “binary for different level of education e.g. elementary, high school, 1-4 years in college, more than 5 years in college” (Lanfranco et al. 2001). The remaining studies did not include education.

There were five main specifications for ethnicity; “Hispanic and others” (Arcia et al. 1990; Binkley & Eales, 2002; Kaushal & Gao, 2010) where Hispanic populations were specified as “Mexican, Puerto-Rico, Cuban” (Lanfranco et al. 2001); “Black, others” (Chavas & Yeung, 1982; Salathe, 1980); “White, non-White” (Davis & Neenan, 1979) or % white (Huang et al. 1981).

The specification of household composition varied considerably between studies. For example:

- children and adults (children 0-5 years old, 6-10 years old; males 11-20 years old; males 23+ years old; females 11-22 years old; and females 23+ years old) (Arcia et al. 1990)
- number of family members in different age groups (≤ 15 , 16-25, up to 65+ years old) (Chavas & Yeung, 1982; Salathe, 1980)
- life cycle composition (no children, child 0-6 years, 1-13 years, 14-20years, first child gone, retirement couple) (Davis & Neenan, 1979)
- number of children <15 years old (Binkley & Eales, 2002) or <18years old and number of people >65yrs (Kaushal & Gao, 2010).
- number of people (Huang et al. 1981).

Table 7: Description of variables studied by the included papers (n=9)

Variable characteristics	N	Papers
Unit of measurement dependant variables (see Table 5 for type of goods)		
Quantity consumed (e.g. in grams/week)	1	Lanfranco et al. 2010
Average weekly expenditure (\$/week)	3	Chavas & Yeung, 1982; Huang et al. 1981; Arcia et al. 1990
Average monthly expenditure (\$/month)	1	Arcia et al. 1990
Per capita spending on a food item	1	Binkley & Eales, 2002
Per capita expenditure per week	2	Salathe, 1980; Kaushal & Gao, 2010
Budget share	1	Reed & Levedahl, 2010
Research (main independent) variable		
Food stamp / voucher	9	Lanfranco et al. 2010; Chavas & Yeung, 1982; Reed & Levedahl, 2010; Huang et al. 1981; Davis & Neenan, 1979; Binkley & Eales 2002; Arcia et al. 1990; Salathe, 1980; Kaushal & Gao, 2010
WIC	2	Lanfranco et al. 2011; Arcia et al. 1990
Other control variables included		
Mother's characteristics (e.g. age, education)	2	Salathe, 1980; Kaushal & Gao, 2010
Income (individual or household)	6	Lanfranco et al. 2010; Chavas & Yeung, 1982; Huang et

Variable characteristics	N	Papers
		al. 1981; Binkley & Eales, 2002; Arcia et al. 1990; Kaushal & Gao, 2010
Household characteristics (e.g. size, age/sex/education of household head)	6	Lanfranco et al. 2010; Chavas & Yeung, 1982; Huang et al. 1981; Binkley & Eales, 2002; Arcia et al. 1990; Kaushal & Gao, 2010
Geographic regions	4	Lanfranco et al. 2010; Huang et al. 1981; Binkley & Eales, 2002; Kaushal & Gao, 2010
Rural/Urban status	3	Lanfranco et al. 2010; Chavas & Yeung, 1982; Huang et al. 1981
House ownership/tenure	2	Lanfranco et al. 2010; Chavas & Yeung, 1982
Year of survey	1	Lanfranco et al. 2010
Race/ethnicity/national origin	6	Lanfranco et al. 2010; Chavas & Yeung, 1982; Huang et al. 1981; Binkley & Eales, 2002; Arcia et al. 1990; Kaushal & Gao, 2010
Macro characteristics (e.g. unemployment rates)	2	Binkley & Eales, 2002; Kaushal & Gao, 2010

4.2.4 Empirical Findings

Impact of voucher programme participation on consumption of fruit, vegetables and milk – main effects

Table 8 summarises the reported impact of participation in welfare food programmes on vegetables, fruit and milk. Five papers reported the relationship between consumption of vegetables and receipt of food stamps. There was mixed evidence that participation in FSP increased the demand for vegetables and evidence of no impact on the demand for vegetables through participating in WIC:

- two studies (one ‘good’, one ‘fair’ quality) found a positive association for FSP (for example Salathe (1980) reported an estimated 16% increase in the consumption of fresh vegetables and a 34.6% increase for processed vegetables in FS participants compared with eligible non-participants);
- one ‘good’ quality study with a large sample size found a negative association between expenditure on vegetables and participation in FSP;
- three studies (two ‘fair’ and one ‘poor’ quality) did not find evidence of any impact on demand for vegetables for either WIC or FSP.

Of the four papers that reported an impact of Food Stamps on consumption of fruit, there was ‘fair’ quality evidence of a positive association between participation in WIC (one ‘fair’ quality) and FSP (one ‘fair’ quality) and demand for fruits. However, two studies (one ‘good’, one ‘fair’ quality) indicated no evidence of impact of FSP on fruit expenditure.

Four studies of the impact of FSP on fruit and vegetables *jointly* showed a mixed set of evidence; one large ‘good’ quality study showed a reduction in demand by single mother families; one ‘fair’ quality study showed a positive impact and two studies showed no significant association (one large ‘good’ quality study of two-parent families, one ‘fair’ quality study). The association between the ‘bonus value’⁵ of Food Stamps and vegetables and/or fruits was mixed, but statistically significant coefficients were positive.

⁵ The term used to specify the value of vouchers received in the FSP/SNAP

One ‘fair’ quality study only, with a sample of 643, showed a statistically significant moderate to strong effect on demand for milk for both WIC and FSP.

The effect of income was reported in four papers. There is no evidence of a negative relationship between income and demand for vegetables, fruit or milk. Of the nine relationships for which evidence was available, three were positive; two ‘fair’ quality studies for fruit and one ‘fair’ quality for fruit/vegetables combined. For example, a 10% increase in income of FSP participants was associated with a 1.06% increase of at-home food expenditures on fruits and vegetables (Huang et al. 1981) and this effect size was almost double for eligible non-participants (a 1.76% increase in expenditure). Elsewhere, a 10% increase in the income of non-Black households without college education and located in metropolitan areas resulted in a 3.3% increase in the average spend per week on fruit (Chavas & Yeung, 1982). The remaining six were either not statistically significant or did not provide statistical evidence.

Table 8: Impact of programme participation reported in the included papers (n=9)*

Food category	Effect size			
	Participation in Food Stamps Programme	Value of Food Stamps	Participation in WIC	Income
Vegetables (separate category)	5 [2(+ ^{b,f}), 1(- ^e) [†] , 2(ns ^{a,d})]	2 [1(+ ^h), 1(ns ^c)]	2 [2(ns ^{a,e})]	3 [2(ns ^{h,c}), 1(? ^a)]
Fruits (separate category)	3 [1(+ ^b), 2(ns ^{a,f})]	2 [2(ns ^{c,h})]	1 [1(+ ^a)]	3 [2(+ ^{h,c}), 1(? ^a)]
Milk (separate category)	1 [1(+ ^a)]		1 [1(+ ^a)]	1 [1(? ^a)]
Fruits and vegetables (joint category)	4 [1(+ ^c), 1(- ^g), 2(ns ^{g,c})]	1[1(+ ⁱ)]		2 [1(+ ^c), 1(ns ^c)]
Papers	^a Lanfranco et al. (2010)** ^b Reed & Levedahl (2010) ** ^c Huang et al. (1981)** ^d Binkley & Eales (2002)* ^e Arcia et al. (1990)** ^f Salathe (1980)*** ^g Kaushal & Gao (2010)***	^c Huang et al. (1981)** ^h Chavas & Yeung (1982)** ⁱ Davis & Neenan (1979)**	^a Lanfranco et al. (2010)** ^e Arcia et al. (1990)**	^a Lanfranco et al. (2010)** ^c Huang et al. (1981)** ^h Chavas & Yeung (1982)**

Key: Number of papers reporting the effect is provided before parentheses []. Number of papers reporting a particular signed effect is provided before brackets (). Signs of effects are in brackets: positive significant effect (+), negative significant effect (-), no significant effect (ns) and unreported significance (?). One paper could include more than one food category and/or more than one effect. *** ‘high’ quality study ** ‘fair’ quality study * ‘poor’ quality Study

Impact of voucher programme participation on consumption of fruit, vegetables and milk – effects of control variables

There was significant variation in terms of inclusion of control variables in the analysis. Of the nine papers reviewed, household size was included in seven papers (effect reported in six), location in seven papers (effect reported in five), age in four papers (effect reported in two), education in four papers (effect reported in three) and ethnicity in eight papers (effect reported in five).

Only four out of seven papers (Arcia et al. 1990; Davis & Neenan, 1979; Huang et al. 1981; Lanfranco et al. 2001) reported household variable’s effect size on consumption. Of the four papers reporting effect size, only one (Davis & Neenan, 1979) reported negative effect of household size on fruits and vegetable expenditures but it was not statistically significant. The most useful interpretation of effect size is provided by Lanfranco et al. (2001). Fruits, vegetables and milk were found to be

inelastic with respect to variations in household size (Lanfranco et al. 2001) with point estimates varying from 0.37 to 0.92 depending on the estimation method. This suggests that as the size of households increase, the demand for fruits, vegetables and milk increases but this increase is less proportionate than the increase in household size⁶.

Five papers reported effect of location. For example, consumption of both fruit and milk was positively associated with households located in a central city (Lanfranco et al. 2001) while consumption of vegetables was associated with living in non-metropolitan areas (Chavas & Yeung, 1982). Only two out of four papers reported the effect of age. Age of the household head was shown to be negatively related to the consumption of milk and fruits (Lanfranco et al. 2001; Davis & Neenan, 1979) although the effect reported in Davis and Neenan (1979) was not significant. Two out of the four papers that included education found that high levels of education were associated with lower levels of fruit and vegetable consumption (Davis & Neenan 1979; Arcia et al. 1990). Of the four papers that reported effect of ethnicity, three found that consumption of fruits and vegetables was positively associated to being white (Arcia et al. 1990; Chavas & Yeung, 1982; Huang et al. 1981). In Lanfranco et al. (2001), the effect was negative for Puerto Rican origin.

Impact of voucher programme participation on other products – main effects

Each paper considered a broad array of other groceries (see Appendix 13). Most papers considered a limited range of groups of products; two papers considered more than five, four papers considered between six and ten, and two papers considered 10-15. However, one paper (Binkley & Eales, 2002) considered 338 products. Two categories of food were considered in all papers: cereals/grains/bakery and meat (either generally or as specified types). This was followed by dairy (6/9) fats and oils (4/9), sugar/sweets (4/9), non-alcoholic beverages (3/9) meals away from home (3/9) and other food at home (3/9) with a further 12 categories considered in one to two papers. In addition to groceries, one paper (Reed & Levedahl, 2010) considered non-food expenditure and two considered total expenditure (Arcia et al. 1990; Salathe, 1980).

While each paper reported statistically significant associations, three papers did not provide evidence of size of effect, only the direction of association (Binkley & Eales, 2002; Chavas & Yeung, 1982; Lanfranco et al. 2001). All studies except one (Huang et al. 1981) showed statistically significant impacts of at least one category of food not included in Healthy Start in the UK. Just over 40% of the variables tested across the papers (excluding Binkley & Eales, 2002) were statistically significant. However, among those that provided evidence of the degree and significance of association, results were often mixed across studies. For example, of the 11 variables included in more than one study, only two had significant coefficients with consistent signs; beef (2/2) and cereals/grains/bakery (2/2). All others had mixed signs, while a further two variables (non-food, sugar/sweets) were significant (positively) in only one study each. For example, Reed and Levedahl (2010) showed that Food Stamps had a small but statistically significant effect on market demand; a 10% increase in the ratio of participating to total households would result in 2.6% increase in the consumption of beef. Salathe (1980) showed that FSP participation was related to increases in expenditure of 14.7% on beef/veal, 32.5% on pork and 41.9% on cereal (per capita per week). Davis and Neenan (1979) showed that approximately \$0.21 – 0.23 of each additional 'Bonus dollar' was spent on bread and grain.

Three studies (Chavas & Yeung, 1982; Huang et al. 1981; Lanfranco et al. 2001) reported income elasticities with respect to products not supported by Healthy Start. Income elasticity for meat ranged from 0.08 to 1.13 according to type of model applied (Lanfranco et al. 2001) whereas Huang et al (1981) found it to be 0.09 and Chavas and Yeung (1982) to range between 0.25 and 0.37 for

⁶ This is supported by Engel's second law.

different meats. Income elasticity with respect to cereals and bakery was estimated as 0.10 (Huang et al. 1981) and 0.4 (Chavas & Yeung, 1982). Finally, income elasticity of eggs was 0.36, sugar and sweets by 0.9, non-alcohol beverages by 0.32, alcohol beverages by 1.38 and prepared food by 0.54 and fat and oils -0.08 (Chavas & Yeung, 1982).

Impact of voucher programme participation on consumption on other products – effect of control variables

Of the nine papers reviewed, household size was included in seven (effect reported in six), location in seven (effect reported in five), age in four papers (effect reported in two), education in four papers (effect reported in three) and ethnicity in eight papers (effect reported in five).

There were mixed effects of other control variables on the consumption of other products. For example, household size elasticity for meat ranged from -1.55 (chicken) to 15.77 (beef) depending on the estimation methods used (Tobit, Heckman, 2-part model). Also for grains, household size elasticity varied from -0.73 to 0.60, legumes from 0.82 to 1.18, fats from -0.03 to 0.18, sugar from 0.26 to 0.88 and beverages from 0.42 to 0.55 (Lanfranco et al. 2001). Households located in a central city spent more on grains and meat but less on beverages compared with others (Lanfranco et al. 2001) while those outside metropolitan areas spent less on eggs (Chavas & Yeung, 1982). Lanfranco et al. (2001) showed a positive association between age of the head of the household and expenditure on grains, beverages, beef and meat. Lanfranco et al. (2001) found a positive relationship between education and consumption of fats, beverages, sugar and grains. Finally, consumption of meat & protein, bread & grain has been shown to be greater among non-white households (Davis & Neenan, 1979; Huang et al. 1981).

4.3 Discussion

This systematic literature review examined the degree and quality of evidence on the impact of voucher-based food-support schemes on the demand for products supported (and not supported) by Healthy Start. Evidence of the cost-effectiveness of such schemes was lacking, as no studies met the inclusion criteria. The economic evaluations available had focussed on the impact of whole programmes, for example voucher schemes with nutrition education or both of these plus referral mechanisms and ante/post natal care (e.g. Schramm 1985; Schramm 1986; Avruch & Cackley 1995; Buescher et al. 1993). They tended to account for impacts on birth weight and costs saved at birth. Since the search was completed, Dallongeville et al. (2011) have modelled the cost-effectiveness of fruit and vegetable stamps to low-income consumers in France. The cost per statistical life year saved was €474,000 (299–733). However, a review of this paper by the Centre for Reviews and Dissemination (CRD accession number 22011000812) concluded key methods were not well reported, an incremental cost-effectiveness analysis was not performed and that therefore it was “difficult to determine if the results are reliable and if the conclusions are appropriate”.

No evidence was found on the demand for some products supported by Healthy Start i.e. vitamin supplementation, infant formula or breastfeeding. No studies on the Healthy Start scheme met the inclusion criteria and therefore the findings here are all drawn from a US-based literature that assessed the impact of WIC and FSP/SNAP on the demand for food.

The evidence of an impact of voucher-based food supplementation programmes on the expenditure or consumption of fruit and/or vegetables and milk was mixed. The clearest result was a positive relationship between milk consumption and participation in either FSP or WIC. However, this relied on a single study of 650 Hispanic households (Lanfranco et al. 2001). Evidence of the impact of programmes on consumption/expenditure of fruit was split between two studies indicating a positive impact and two that did not. Evidence for vegetables was more challenging to interpret

because there was statistically significant evidence of opposite relationships; two positive for participation in FSP and two positive for bonus value but one study that found FSP participation reduced consumption of vegetables.

While the value of Food Stamps varied according to earnings, family size, child support, medical expenses, excess housing costs, and a caring dependency role, only three studies considered the relationship between the value of Food Stamp vouchers received and the demand for fruit and vegetables (as separate categories). None found a positive association for fruit, but one found a positive relationship with the demand for vegetables and another for fruit and vegetables combined.

The mixed effects of control variables shows the potential importance of controlling for a wide range of variables, particularly household size, urbanisation status, age, education and ethnicity. However, the mixed effects suggest that results are likely to change depending on the product considered. For the products supported by Healthy Start, there was consistent evidence that all were positively associated with household size. However, as this was drawn from a Hispanic population, it is not a strong basis for hypothesis testing. Therefore, while this literature might provide future research with a list of variables for consideration, there is not strong evidence to expect a direction of association.

As all studies except one (Huang et al. 1981) showed a statistically significant impact of at least one category of food not supported by Healthy Start in the UK, it may be important to consider impacts on a broad range of products. However, the WIC and FSP/SNAP support a broader range of products and results may not transfer easily to the UK. Nevertheless, 'food purchased outside the home' had a large and negative association with participation in WIC ('fair' quality evidence) (Arcia et al. 1990) and non-food items were positively associated with participation in FSP ('fair' quality evidence) (Reed & Levedahl, 2010). It indicates that impact of vouchers beyond the products supported should be considered. The range of products that should be considered, however, is a moot point.

As with the evidence for products supported by Healthy Start, the range of products additionally supported by WIC and FSP/SNAP showed a mixed association with participation in the programme. When statistically significant, beef (in two studies of 'fair' quality) and cereals/grain/bakery goods (in one study of 'fair' and one study of 'poor' quality) were positively related to participation. Both these can be classed as potentially healthy foods and therefore be viewed as a positive impact. One study of 'fair' quality (Chavas & Yeung, 1982) however, indicated that 'sugar and sweets' was positively related to the bonus, even though two others did not find this. It suggests that both healthy and unhealthy demands should at least be assessed in the UK, although results may not be positive. Finally, in neither of the two studies (one 'high', one 'fair' quality) considering food spending overall was a significant association found with participation.

Authors pointed to the challenge of selection bias as a specification error, which arises because many households may report "zero" consumption for at least one food category. Both a two-step Heckman procedure and a Type II Tobit method have therefore been recommended over ordinary least squares regression (Huang et al. 1981; Lanfranco et al. 2001). These allow elasticities connected with the decision to purchase as well as elasticities of level of consumption or expenditure. However, as single equation models, they don't allow for households that take allocation decisions between different goods simultaneously. Only Reed and Levedahl (2010) have accounted for this restriction, using the Almost Ideal Demand System (AIDS), and considering elasticities for eight food items as well as SNAP. Since AIDS modelling was introduced in 1980 (Deaton & Muellbauer, 1980) this theoretically based model has been used in numerous empirical studies of demand and is considered to be preferred to alternative systems of demand models for a wide range of reasons (Tiffin et al. 2011).

An important caveat of the analyses reported in this paper is that the demand estimations do not explicitly include price of foods as a predictor, as the theory of consumer demand would expect. Evidence from a recent systematic review of price elasticities for food (Andreyeva et al. 2010), indicates that the absolute value of mean price elasticity estimate (95% CI) was: 0.70 (0.41, 0.98) for fruit, 0.58 (0.44, 0.71) for vegetables and 0.59 (0.40, 0.79) for milk. As with other food categories, estimates were price inelastic (i.e. as price falls, demand rises, but less than proportionately); a 10% reduction in the price of these foods would increase purchases on average by 7.0% for fruit, 5.8% for vegetables and 5.9% for milk. It suggests therefore that the same % fall in price will have larger impacts on fruit than vegetables. It is of note that the AIDS approach has recently been adopted to evaluate the impact of taxes on food that target healthier eating (Nghiem et al. 2011) and that they also found own price elasticities for fruit and vegetables combined was -0.69.

The analyses reviewed were mainly based on cross-sectional self-reported data. Only one paper used time series data (Reed & Levedahl, 2010) and none was based on randomised trials. The concerns with the majority of analyses to date rest on the reliability of identifying non-participants against which participants are compared, as survey data often fail to reveal all participants in voucher programs (Bollinger & David, 2001; Kreider et al, 2009). Secondly, the problems of self-reporting food expenditure/consumption are well reported, including techniques to account for the errors (Meyer & Sullivan 2007). Thirdly it is both more difficult to reveal substitution effects between competing products and less reliable at estimating the responsiveness of demand to changes in prices and income as variation in such attributes can only be observed across people rather than in responses to changes over time.

Whether the results found are likely to transfer to the UK is questionable for a number of reasons. The challenges to the transfer of results begin with the difference in programmes. Firstly, the eligibility criteria differ as, for example, SNAP/FSP supports a much wider age group, for example including children up to the age of 19 rather than limited to five years as with WIC. Second, to qualify for WIC a family income should be below 185% of the U.S. Poverty Income Guidelines, and FSP recipients must have at most near-poverty incomes to qualify for benefits compared with Healthy Start recipients who qualify based on number of income support benefits or and income less than £16,190. Third, the range of food supported is greater than Healthy Start; WIC includes for example, cereal, dairy products, canned fish and fruit juice. The FS/SNAP programme covers foods (including sweetened items) as well as seeds and plants that produce food for consumption. This will at least partly explain the wide range of products considered. However, the only paper evaluating WIC alone (Arcia et al. 1990) did consider foods beyond those provided by WIC (e.g. meat, food away from home) as well as impact on total grocery expenditure and total expenditure for all items. This was similar to the listing adopted by Kaushal and Gao (2010) who evaluated the impact of FSP.

As WIC appears to be closer to Healthy Start than the FSP, the findings of Lanfranco et al. (2001) and Arcia et al. (1990) may be more pertinent to the UK, although both use relatively old data from 16-19 years and 30 years ago respectively. The Lanfranco et al. (2001) study is also based entirely on a Hispanic population and the paper by Arcia et al. (1990) on a very different population mix to the UK (57% White, 19% Black, 21% Hispanic). As food consumption is shaped by conceptions of identity, in which ethnicity is one important factor (Carrus et al. 2011), the absence of a large Asian population from the US studies is another reason why results might not transfer well to the UK. Finally, considering differences in absolute and relative prices and availability of different types of food between the UK and US, challenges the credibility of transferring findings to the UK. However, the transferability of evidence is testable. Given the good reasons for expecting differences, it would be better to test for differences and similarities rather than assume results (or even underlying models) transfer well.

A number of gaps in knowledge have been highlighted by this systematic literature review:

- There is no study on the impact of voucher programmes on the demand for vitamin supplementation or infant formula or breastfeeding
- No US-based study has examined the impact of WIC on the demand for products it supports using a system of demand equations
- No UK based studies has examined the impact of Healthy Start vouchers on the demand for products supported by Healthy Start or breastfeeding
- No UK based study on the cost-effectiveness of Healthy Start vouchers
- No study has considered the impact on demand for products supported by Healthy Start as a result of changing either the value of vouchers or eligibility criteria

4.4 Conclusions

The systematic review of economic literature suggested that participation in WIC and FSP/SNAP was associated, in one study only, with an increase in the purchase of milk. The results for fruit were mixed as two studies showed a positive impact among participants and two showed no impact. The results for vegetables were even more mixed, with studies finding both a positive and negative impact and most studies identifying no significant association. There also some evidence of a positive impact on demand for beef and a reduction in the demand for food outside the home. The latter indicates that there may be impacts on purchasing outside of the products supported by the voucher programmes. Most other products have either no evidence of significant association with either voucher programme or evidence of both positive and negative associations.

There are five main challenges to transferring these findings to the UK; the US programmes cover a much wider range of goods; the US programmes have different eligibility criteria; the evidence in US studies is based on a different ethnic mix; no evidence is available on some products supported by Healthy Start i.e. vitamin supplementation, infant formula and breastfeeding; and the absolute and relative prices differ along with availability of different types of food.

A study using UK specific data is therefore needed to determine the impact of Healthy Start on the demand for products supported by Healthy Start. This review indicated that the impacts of the voucher programme may be felt beyond these products and that decision making for any one food group is likely to be taken alongside decisions for other products. Therefore any study in the UK needs to consider impacts of Healthy Start vouchers on the demand for products supported and not supported by Healthy Start. It would also ideally account for changes in spending overtime, to help indicate the extent of substitution between products and work carefully on finding comparison groups in demonstrating effectiveness. Evidence to date suggests that it is important to test the need to 'control for' a range of variables such as household size, urbanisation status, age, education and ethnicity. Any evidence on the impact of changing eligibility criteria or the value of the voucher would provide new knowledge of interest internationally as this has not been studied.

CHAPTER 5: EVALUATION OF THE VIEWS AND EXPERIENCES OF PRACTITIONERS AND WOMEN

In this chapter we present the methods and findings of the components of the evaluation that focussed on the views and experiences of women and practitioners. The work with practitioners comprised focus groups and a national electronic consultation, and the work with women comprised participatory workshops, focus group discussions with women who did not speak English and telephone interviews with women from Traveller communities. The findings of these five components of the evaluation are presented together in nine themes. At the end of each theme, the draft recommendations derived from that theme that were taken forward to the cross-sectoral workshops (the next stage of the evaluation) are listed. The final part of this chapter describes the role of the key informant user panel.

5.1 Methods

The qualitative work with practitioners and women was conducted in two regions of England; Yorkshire and the Humber, and London, selected because of their large and diverse populations. The national electronic consultation was circulated across England.

5.1.1 *Ethics and governance*

The study elements involving practitioners, i.e. the practitioner focus groups and national electronic consultation, were assessed as service evaluation by the Chair of the Leeds East Research Ethics Committee and therefore did not require NHS ethics approval. Ethics approval for the participatory workshops and focus group discussions with women who did not speak English was granted by the Humber Bridge Research Ethics Committee in October 2011. An application for a substantial amendment to undertake telephone interviews with women from Traveller communities was approved by the same ethics committee in March 2012. The study was adopted by the NIHR Clinical Research Network Portfolio (NIHR CLRN) and research governance was facilitated by the NIHR system for gaining NHS permission (NIHR CSP) led by the North East Yorkshire and Northern Lincolnshire CLRN. Research governance was obtained from 12 NHS Trusts and one Local Authority.

5.1.2 *Practitioner focus groups*

Aims

The aims of the practitioner focus groups were to find out health practitioners' views of how the Healthy Start scheme was working and how it could be improved, and to explore the local contextual factors and issues facing specific population groups that impact on the uptake and effectiveness of Healthy Start. The practitioner focus groups were also intended to inform the content of the national electronic consultation

Process

Six focus groups were held: three in Yorkshire and the Humber (Calderdale, North East Lincolnshire and Sheffield) and three in London (Ealing, Tower Hamlets and Westminster) during March and April 2011. These areas were selected to represent high and low uptake of vouchers and vitamin supplements, different population groups and urban and rural contexts (Table 12 shows which localities fulfilled each of these criteria), and took account of recommendations from the regional Healthy Start leads in post at the time of this phase of the work.

In each area a contact with responsibility for implementing Healthy Start locally was identified, and these contacts invited a range of practitioners who were involved in Healthy Start. Between six and eleven participants took part in each group, and the groups lasted from 40 to 60 minutes. A topic guide was used based on the aims and objectives of the study (Appendix 14). Two members of the research team facilitated the discussions, one to moderate the discussion and one to take notes of key points. Five focus groups were audio-recorded; problems with the audio equipment resulted in an unusable recording for the sixth group, although detailed contemporaneous notes were taken. Each audio-recording was listened to by one member of the research team (AM) who added information and illustrative quotes to the field notes which were then reviewed by the two researchers who were present at that group. Analysis involved reading the notes from each group, identifying common themes and categorising the comments into nine main themes based on the study objectives and aspects of the Healthy Start scheme. Each main theme was then organised into sub-themes which included descriptive comments, perceptions of barriers and strategies for overcoming the barriers.

5.1.3 National electronic consultation

Aims

The aim of the national (England only) electronic consultation was to elicit the views of health and social care practitioners, service managers, commissioners, and user and advocacy groups on the advantages and disadvantages of the Healthy Start scheme, operational issues and suggestions for how the scheme could be improved.

Process

A semi-structured web-based questionnaire was developed based on the study aims and objectives, the preliminary findings of the practitioner focus groups, the views of collaborators and stakeholders who represented practitioners and service user groups, and the key informant user panel. The questionnaire (Appendix 15) was structured in nine sections based primarily on the themes identified from the practitioner focus groups and included closed and open questions. Each of the first seven sections included a series of statements which respondents were asked to grade on a five-point Likert scale of 'strongly agree' to 'strongly disagree' with additional options of 'don't know' and 'not applicable'. The statements were drawn from the findings of the practitioner focus groups which had the highest level of consensus. The open questions in each section asked about barriers, strategies for improvements and examples of good practice. There were general questions about the benefits and disadvantages of Healthy Start and respondents were asked to provide information about themselves including their role, employing organisation, geographical region and their involvement with Healthy Start. Finally, respondents were asked to provide their e-mail address if they wished to receive a summary report of the study and/or if they could be contacted for further information regarding any examples of good practice they had provided. The draft questionnaire was circulated to the study collaborators and members of the Project Advisory Group and minor amendments were made following their feedback. Time and budget restrictions did not allow the questionnaire to be fully piloted.

One week prior to dissemination of the questionnaire, a letter (Appendix 16) from the Principal Investigator (MJR) and chair of the Project Advisory Group (Professor E. Dowler) was sent to all Regional Directors of Public Health, Regional Local Supervising Authority Midwifery Officers in England and key individuals from professional associations (Royal College of Midwives, Community Practitioner and Health Visitor Association, Royal College of General Practitioners, Royal College of Paediatrics and Child Health, Royal Society for Public Health) explaining the purpose and timescale of the consultation and asking for the questionnaire to be circulated to colleagues, staff and

membership of professional associations. In July 2011, the web link to the questionnaire (which was on the platform Survey Monkey) was circulated by e-mail to extensive networks of practitioners, user representatives, strategic and operational managers, service commissioners and public health leads. The consultation was open for six weeks during July and August 2011 and a reminder e-mail was circulated two weeks before the consultation closed.

The research team was contacted by several individuals, mostly children's centre staff, who were unable to access the consultation because of their organisation's internet security settings. As there was no capacity to enter data manually from individual copies of questionnaires, they were thanked for their interest and asked to access the consultation via an alternative computer if possible. This difficulty with access suggests response rates could have been higher in some sectors and is an issue for consideration in future web-based work. During the consultation the research team was contacted directly by Healthy Start leads in the West Midlands and Greater Manchester who provided information and documentation about work they were undertaking to enhance the implementation of Healthy Start.

Analysis of the data comprised descriptive statistics for the quantitative components. Content analysis was used for the qualitative responses and the themes were compared to the findings of the practitioner focus groups.

5.1.4 Evaluation of the views and experiences of women

Aims

Participatory workshops, focus group discussions and telephone interviews were held with women to examine their perspectives and experiences of all aspects of the Healthy Start scheme including perceived advantages and disadvantages of Healthy Start vouchers and their impact on buying behaviour and food choices.

Target populations

The aim was to include women from specific vulnerable groups such as teenagers, minority ethnic groups including women who did not speak English, and those from urban and rural areas of high socio-economic disadvantage. We also wished to include women at all stages from pregnancy, breastfeeding, formula feeding, milk feeding, weaning, and up until their children were four years old, from any of the following categories:

- Women currently receiving vouchers;
- Women who had received vouchers within the last year;
- Women who had recently applied for Healthy Start and were not yet receiving vouchers;
- Women who had applied for Healthy Start but been refused;
- Women who thought they might be eligible if they applied.

Although the expectation was that most participants would be women, men who were in any of the above categories or who wished to accompany their partners were not excluded.

5.1.5 Participatory workshops

Rationale

A wide range of qualitative methods were considered for this work, which required us to gain the trust of women from low-income and vulnerable groups, including those with less formal education,

to encourage sharing of opinions in an environment free from hierarchy and officialdom. Participatory workshops were chosen as a method to enable women from vulnerable groups, including those with less formal education, to have the confidence to share their opinions. The workshops were facilitated by Food Matters, an NGO working on food policy issues with expertise in food access and participation.

Process

Eleven participatory workshops, six in Yorkshire and the Humber (in Bradford, Calderdale, Leeds, North Lincolnshire, Sheffield and York) and five in London (in Camden, Greenwich, Southwark, Tower Hamlets and Westminster) were held. These areas were selected to represent high and low uptake of Healthy Start vouchers, urban and rural contexts, high levels of socio-economic disadvantage and ethnically diverse populations. The workshops were held between November 2011 and April 2012 in a range of settings: children's centres, community and housing association centres and a Young Person's Education Centre.

A purposive approach to sampling was used and a sampling matrix (Appendix 17) guided recruitment. Recruitment was facilitated by health professionals, children's centre staff and community workers. Venues were chosen that were familiar to women, easily accessible and in which they would feel comfortable, and staff at the venues, supported by the research team, organised refreshments and crèche facilities. For the two workshops in rural areas (North Lincolnshire and Calderdale) transport by taxi to the venue was provided. Wherever possible, women were drawn from pre-existing groups, as it was felt that knowing at least one other person present would be less intimidating than being among strangers.

Women were given the Participant Information Sheet (Appendix 18) by the recruitment facilitators a week before the workshop. At the beginning of the workshop the information in the Participant Information Sheet was reiterated, opportunities for questions provided and signed consent obtained (Appendix 19). At the end of the workshop, women were invited to complete a short questionnaire (Appendix 20) and were given £20 to compensate for any out-of-pocket expenses and to thank them for their contribution.

Each workshop lasted approximately two and a half hours and used a range of participatory methods (see Appendix 21 for details) to encourage sharing and discussion of experiences and opinions. Workshops were facilitated by one or two Food Matters' staff with a member of the research team in attendance. The workshops addressed five key topics: the purpose of Healthy Start, what recipients receive as part of Healthy Start, the success of Healthy Start in achieving its aims, the impact of Healthy Start on shopping, eating and health, and the influence of Healthy Start on infant feeding decisions. Food Matters staff conducted thematic analysis of the material collected from each workshop, which comprised flipchart notes, post-it notes and observations of the facilitator, and provided a summary of the main themes from all the workshops. This was synthesised with the notes taken by the member of the research team who attended the workshop. The findings of all the workshops were analysed thematically using the framework developed from the study aims, the structure of the Healthy Start scheme and the findings of the practitioner focus groups and electronic consultation.

In the case of two workshops (Sheffield and Westminster) only one woman arrived on the day, although between six and eight had confirmed that they would attend. In these cases the workshop facilitator used a modified version of the workshop activities to carry out an informal interview. The findings of these interviews were analysed in the same way as that for the participatory workshops.

5.1.6 Focus group discussions with women who did not speak English

Rationale

Three focus groups were held to enable inclusion of women who did not speak English, as they would have found it difficult to participate fully in the English-language participatory workshops.

Process

One focus group for Somali-speaking women was held in a children's centre in London and two focus groups were held in Yorkshire, one (in a neighbourhood project) for Sylheti-speaking women of Bangladeshi origin, the other (in a children's centre) for Urdu-speaking women of Pakistani origin, also attended by two Polish-speaking women. The Project Advisory Group advised the research team on the areas and target languages to include. Children's centre staff and community health workers organised recruitment of women and acted as interpreters for the focus groups. The interpreters all knew the women well and one was herself receiving Healthy Start vouchers. The focus groups were held during March 2012 and were all facilitated by the same member of the research team (AM).

Participant Information Sheets and consent forms (Appendices 22 and 23) were translated into the relevant languages by a professional translation service and checked for meaning by the interpreters. Women were given the Participant Information Sheets a week before the focus group. At the beginning of the focus group the interpreter reiterated the information in the Participant Information Sheet, provided opportunities for questions and obtained signed consent. At the end of the session the interpreter helped women to complete the questionnaire and women were given £20 to compensate for any out-of-pocket expenses and to thank them for their contribution. The focus groups were approximately one and a half hours in length. The topic guide was based on the same five key topics used for the participatory workshops (Appendix 24). Each focus group was audio-recorded and then listened to by a member of the research team and key points extracted. These were then analysed using the same process as described above for the participatory workshops.

5.1.7 Telephone Interviews with women from Traveller communities

Rationale

The research team had planned to include women from Traveller communities in a participatory workshop. A specialist team of health visitors for Homeless and Traveller Health offered to help with recruitment and reported that women were reluctant to attend a participatory workshop but that three women were keen to share their experiences of the Healthy Start scheme and were willing to take part in one-to-one telephone interviews.

Process

As described above, the Research Ethics Committee granted approval for the deviation from the study protocol and a project collaborator (JM) carried out the three telephone interviews in April 2012. The specialist health visitors gave the women concerned the Participant Information Sheets (Appendix 25) and, with the women's consent, forwarded contact telephone numbers to the research team. The researcher (JM) contacted each woman and arranged an appointment for the interview. At the beginning of each interview, the researcher reiterated the information contained in the Participant Information Sheet and obtained verbal consent to proceed. Each interview lasted approximately 30 minutes and was facilitated using the same topic guide as was used for the focus group discussions with women who did not speak English. The researcher completed the questionnaire with the women at the end of each telephone interview. The three women were sent

their £20 honorarium by post. The researcher took notes of key points from the interviews. These were then analysed using the same process as described above for the participatory workshops.

5.2 Findings

5.2.1 Participants- practitioners

Practitioner focus groups

Forty nine practitioners who worked with vulnerable groups and who were involved in different aspects of Healthy Start participated in six focus groups. Participants represented a wide range of disciplines and roles in relation to Healthy Start as shown in Table 9.

Table 9: Summary of practitioner focus group participant roles

	Yorkshire and the Humber			London			Totals
	Calderdale	N.E. Lincs.	Sheffield	Ealing	Tower Hamlets	Westminster	
Health Visitor	2		1	2	2	2	9
Public Health Specialist	1	1	1	1	1	2	7
Midwife	1	1	2			2	6
Administrator	1		2	1	1	1	6
Infant Feeding Specialist	1	1				1	3
Support Worker	1		2		1		4
Service Manager	2	1	1	1			5
Nursery Nurse	1			1	1		3
Children's Centre Manager	1	1					2
Other		1 Intelligence Analyst	1 Dietician	2 Family Nurse GP			4
Total	11	6	10	8	6	8	49

Overall the research team noted the practitioners' enthusiasm for the Healthy Start scheme and how keen they were to participate in the study. Many stated that they were attending the focus group discussions to find out more about Healthy Start. In two localities, the practitioner organising the focus group said that they intended to use the focus group as an impetus to improve how Healthy Start was operationalised in their areas. It was also notable that in all the focus groups, the overriding focus of discussions was the vitamin element of Healthy Start. Throughout the discussions, focus group moderators had to prompt participants to consider the other elements of Healthy Start in their discussions.

National electronic consultation

The questionnaire was completed by 620 respondents representing a wide range of roles as shown in Table 10. Tables showing the respondents by employing authority and geographical region are contained in Appendix 26.

Table 10: Summary of national electronic consultation participant roles

	N	%
Health Visitor	217	35.1
Midwife	134	21.6
Public Health Specialist	53	8.6
Dietician	26	4.2
Infant Feeding Specialist	22	3.6
Support Worker	20	3.2
Early Years' Practitioner	11	1.8
Nutritionist	9	1.5
Nurse	8	1.3
Paediatrician	8	1.3
Voluntary Sector Supporter/User Representative	8	1.3
Administrator	7	1.1
General Practitioner	7	1.1
Service Commissioner	7	1.1
Other	82	13.2
Total answered question	619	

Respondents were also asked about their role in relation to the Healthy Start scheme. Over 70% said that they encouraged women who may be eligible to apply for Healthy Start, and almost 70% said they provided information about healthy eating, vitamins and breastfeeding. Over half of respondents helped women complete and/or signed the application forms. A quarter said they helped applicants to sort out problems with their Healthy Start claims. With regard to Healthy Start vitamins, nearly two thirds of respondents said they advised women and children to take vitamin supplements and/or provided information about where to obtain Healthy Start vitamins. Nine percent of respondents were involved in ordering and distributing Healthy Start vitamins.

5.2.2 Participants - women

A total of 113 women took part in the participatory workshops, focus group discussions for women who did not speak English and telephone interviews with women from Traveller communities. Table 11 below shows the characteristics of the 109 women who completed the demographic questionnaire. The four who did not complete the questionnaire were all participants in the participatory workshops.

Table 11: Participant characteristics– women

Participant characteristic	All N (%) N=109	Participatory workshops N=81	Focus groups (non-English speaking women) N=25	Telephone interviews (Travellers) N=3
Gender				
Female	105 (96.3)	77 (95.1)	25 (100)	3 (100)
Male	4 (3.7)	4 (4.9)		
Age				
≤20	12 (11.1)	12 (14.8)		
21-30	56 (51.3)	47 (57.9)	9 (36)	
31-40	34 (31.2)	19 (23.3)	12 (48)	3 (100)
>40	4 (3.7)	1 (1.2)	3 (12)	
missing	3 (2.8)	2 (2.5)	1 (4)	
Ethnic background				
White British	43 (39.4)	43 (53.1)		
White other	8 (7.3)	3 (3.7)	2 (8)	3 (100)
Asian	30 (27.5)	15 (18.5)	15 (60)	
Black	20 (18.3)	13 (16)	7 (28)	
Arab	1 (0.9)	1 (1.2)		
Mixed	2 (1.8)	2 (2.5)		
Other	5 (4.6)	4 (4.9)	1 (4)	
No. of children				
0	4 (3.7)	4 (4.9)		
1	30 (27.5)	27 (33.3)	3 (12)	
2	24 (22)	22 (27.2)	1 (4)	1 (33.3)
3	27 (24.8)	21 (25.9)	6 (24)	
4	9 (8.3)	2 (2.5)	6 (24)	1 (33.3)
≥5	15 (13.8)	5 (6.1)	9 (36)	1 (33.3)
Age of youngest child in months				
0-5	22 (20.2)	21 (25.8)	1 (4)	
6-11	17 (15.7)	12 (14.9)	5 (20)	
12-23	17 (15.5)	13 (15.9)	4 (16)	
24-35	28 (25.7)	20 (24.7)	6 (24)	2 (66.7)
36-47	12 (11)	8 (9.8)	3 (12)	1 (33.3)
≥48	9 (8.2)	4 (4.9)	5 (20)	
Missing	4 (3.7)	3 (3.7)	1 (4)	
Highest educational qualification				
None	36 (33)	24 (29.6)	9 (36)	3 (100)
GCSE D-G	27 (24.8)	20 (24.7)	7 (28)	
GCSE A-C	19 (17.4)	17 (21)	2 (8)	
A level	12 (11)	11 (13.6)	1 (4)	
Degree	6 (5.5)	6 (7.4)		
Missing	9 (8.3)	3 (3.7)	6 (24)	
Employment status				
Maternity leave	6 (5.5)	6 (7.4)		
Student	12 (11)	10 (12.3)	2 (8)	
Employed full-time	2 (1.8)	2 (2.5)		
Employed part-time	6 (5.5)	3 (3.7)	3 (12)	
None	73 (67)	53 (65.4)	17 (68)	3 (100)
Missing	10 (9.2)	7 (8.6)	3 (12)	
Partner's employment				
Student	2 (3.8)	2 (2.5)	0	
Employed full-time	11 (1.8)	8 (9.9)	3 (12)	
Employed part-time	12 (11)	4 (4.9)	8 (32)	
None	28 (25.7)	18 (22.2)	8 (32)	2 (66.7)
Missing	56 (51.4)	49 (60.5)	6 (24)	1 (33.3)
First language English				
Yes	62 (56.9)	57 (70.4)	2 (8)	3 (100)
No	45 (41.3)	23 (28.4)	22 (88)	

Participant characteristic	All N (%) N=109	Participatory workshops N=81	Focus groups (non-English speaking women) N=25	Telephone interviews (Travellers) N=3
Missing	2(1.8)	1 (1.2)	1 (4)	
Pregnant				
Yes	14 (13.3)	11 (13.6)	2 (8)	1(33.3)
No	91 (83.5)	67 (82.7)	22 (88)	2 (66.7)
Missing	4 (3.7)	3 (3.7)	1 (4)	
Receiving Healthy Start vouchers				
Yes	61 (58.1)	50 (61.7)	9 (36)	2 (66.7)
No	44 (40.4)	27 (33.3)	16 (64)	1 (33.3)
Missing	4 (3.7)	4 (4.9)		
Not receiving Healthy Start vouchers				
Did receive but no longer eligible	14 (12.8)	8 (9.9)	6 (24)	
Don't know if eligible	20 (18.3)	11 (13.6)	8 (32)	1 (33.3)
Not eligible	6 (5.5)	6 (7.4)	0	
Mother takes vitamin supplements				
Yes	35 (32.1)	26 (32.1)	9 (36)	
No	72 (66.1)	54 (66.7)	15 (60)	3 (100)
Missing	2 (1.8)	1 (1.2)	1 (4)	
Type of vitamin supplements taken by mother				
Free Healthy Start	14 (12.8)	13 (16)	1 (4)	
Prescribed by doctor	7 (6.4)	4 (4.9)	3 (12)	
Purchased	19 (17.4)	12 (14.8)	7 (28)	
Pre-school children given vitamin supplements				
Yes	36 (33)	27 (33.3)	9 (36)	
No	64 (58.7)	49 (60.5)	12(48)	3(100)
Missing	9 (8.3)	5 (6.2)	4 (16)	
Type of vitamin supplements given to preschool child				
Free Healthy Start	15 (13.8)	12 (14.8)	3 (12)	
Prescribed by doctor	5 (4.6)	3 (3.7)	2 (8)	
Purchased	18 (16.5)	13 (16)	5 (20)	

Participatory workshops

Eighty five women attended 11 workshops. The number of participants attending each workshop ranged from one to 13. Table 12 shows a breakdown of the localities, participant groups and number of attendees at each workshop.

Table 12: Participatory workshops by locality and participant group

Sample category and location	N. Lincs.	Leeds	York	Sheffield	Calderdale	Bradford	Greenwich	Southwark	Camden	Tower Hamlets	Westminster	Total work shops
Yorkshire and the Humber	✓	✓	✓	✓	✓	✓						6
London							✓	✓	✓	✓	✓	5
Voucher uptake* %	79.4	82.3	74.2	83	80.4	82.3	79.3	78.8	81.9	81.7	82.7	
Vitamin uptake women* %	0.4	5	5.8	2	0	0	0	0	0	0	0	
Vitamin uptake children* %	0.5	3.8	1.5	2	0	0	0	0	3.4	0	0	
Rural	✓				✓							2
Urban		✓	✓	✓		✓	✓	✓	✓	✓	✓	9
Teens				✓				✓				2
Women from minority ethnic groups						✓	✓	✓	✓	✓	✓	6
Total Participants	13	10	7	1	7	11	12	4	8	11	1	11 work shops 81 participant s

*Healthy Start Management Information 2010/11: quarter 2

Focus group discussions with women who did not speak English

Twenty five women attended three focus groups as shown in the table below.

Table 13: Focus group discussions with women who did not speak English by locality and participant group

Sample category and location	Leeds	Bradford	Ealing	Total focus groups
Yorkshire and the Humber	✓	✓		2
London			✓	1
Voucher uptake* %	82.3	82.3	80.5	
Vitamin uptake women* %	5	0	0	
Vitamin uptake children* %	3.8	0	0	
Languages spoken	Sylheti	Urdu and Polish	Somali	
Total Participants	8	10	7	3 focus groups 25 participants

*Healthy Start Management Information 2010/11: quarter 2

Telephone Interviews with women from Traveller communities

As can be seen in Table 11 above, three women from Traveller communities took part in telephone interviews.

5.2 Themes

The findings of the evaluation of the views and experiences of practitioners and women are presented in nine themes which were identified initially from the aims and objectives of the evaluation and the literature reviews, and were refined according to the findings of each component of the evaluation. The nine themes are:

1. General benefits and importance of Healthy Start
2. Information provision and awareness of Healthy Start
3. Opportunity for providing health-related and lifestyle information
4. Eligibility for Healthy Start
5. Applying for Healthy Start
6. Using Healthy Start vouchers
7. Healthy Start vitamin supplements
8. Healthy Start and infant feeding
9. Information and training for health care practitioners

Within each theme, findings from the practitioner focus groups and the national electronic consultation are presented first, followed by the findings of the participatory workshops, the focus group discussions with women who did not speak English, and the telephone interviews with women from Traveller communities. At the end of each theme the draft recommendations relating to that theme that were taken forward to the cross-sectoral workshops are listed. See Appendix 27 for a table of all the quantitative results of the national electronic consultation.

5.2.1 Theme 1: General benefits and importance of Healthy Start

Practitioner focus groups

In all focus groups, practitioners felt the Healthy Start scheme had important benefits for the health of mothers and children. The most commonly mentioned benefits were healthy eating and increased vitamin intake, and in four groups, participants felt that many families in their localities depended on the scheme to be able to include fruit and vegetables in their diets.

There is more awareness of the need to eat healthily – using vouchers for fruit and vegetables (Sheffield)

Very useful scheme – encouraging pregnant and postnatal mothers to ensure they have sufficient vitamins and after for their children (Ealing)

I see lots of families who would not be eating fruit and vegetables without Healthy Start (Calderdale)

National electronic consultation

As shown in the graph below, half of the respondents felt that Healthy Start had a positive impact on local women and children while almost half said they did not know. Nearly a quarter of respondents thought there were negative impacts of Healthy Start.

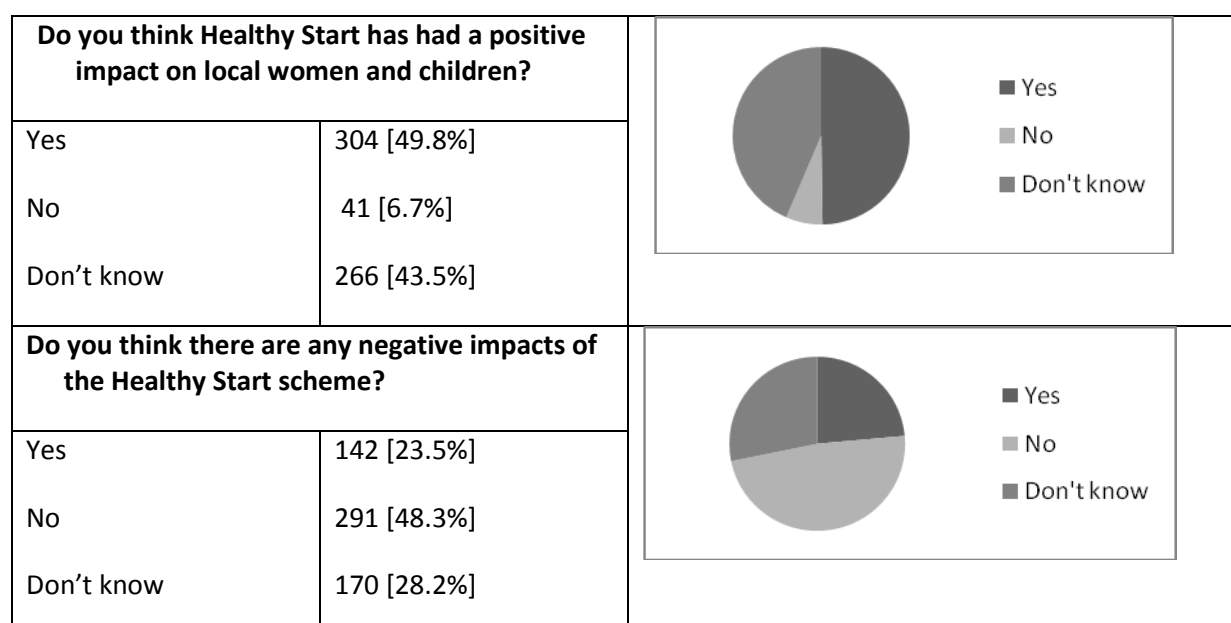


Figure 2: National electronic consultation responses - impact of Healthy Start

The most common examples of benefits mentioned were that Healthy Start enabled low-income families to access healthier foods and vitamin supplements that would otherwise be beyond their means, encouraged good shopping and eating habits, freed up cash in a restricted budget to buy other necessary goods and raised parents' and professionals' awareness of the need for vitamins. The most frequently stated negative aspects of Healthy Start were that it incentivised formula feeding, that there was stigma attached to using vouchers that are only for those on low incomes, that it created the assumption that those who are not eligible for the vouchers do not need vitamin supplements and the fact that many families in nutritional need are not eligible (for example, those on low incomes but above the threshold and those seeking asylum).

Participatory workshops

Women felt that the Healthy Start scheme was an important support to provide a healthier diet for them and their families. Many said the impact of the vouchers was significant and, when the child was no longer eligible, the absence was noticeable. The majority of women reported that the scheme influenced their shopping and eating habits and the vouchers enabled them to buy better quality and a greater variety of vegetables and fruit. Some women felt the Healthy Start scheme supported them to change their lifestyle rather than their diet because it freed up money to do other things. Many women said they would buy similar amounts of milk and vegetables and fruit even if they did not get the vouchers; however the vouchers helped them to manage better financially. The vouchers were also said to help to establish good habits and supported parents to explore different and better ways of feeding their families. The vouchers provided a reminder of the need to eat a healthy diet. Several pregnant teenagers and young mothers said that Healthy Start provided them with resources for food to which they would not otherwise have access. Many of the women, especially those that had come to the UK as migrants, expressed a great sense of gratitude for the scheme.

For some women there appeared to be a lack of understanding that the purpose of the scheme was to support healthy food decisions rather than to provide a small amount of financial help for those who needed it most. This was especially the case for those who were formula feeding their babies. The scheme appeared to have greater influence on diet and nutrition among mothers who breastfed exclusively, because they could spend the vouchers on fruit, vegetables or plain cows' milk. This brought benefits to both the mother and her children as the scheme potentially established habits that continued to be reinforced following weaning.

I used to live on junk food - now I'm eating healthy. I get up feeling great - Friends say I look much better now - makes me feel so much better and healthier. Without vouchers I wouldn't buy fruit and veg. (York participant)

I am in the habit of shopping for fruits and vegetable so I think I'll carry on. Get your kids used to it and demand it of you (Camden participant)

I have continued to buy vitamins even though I'm not getting vouchers anymore as he has reached four years old. I'm not sure I would be buying vitamins now if I hadn't been on the scheme in the first place (Greenwich participant)

It's a very important time in a child's life and we are lucky in this country that we get the vouchers (N. Lincs. participant)

Focus group discussions with women who did not speak English

Women in the focus groups were in general agreement that Healthy Start was an important scheme to improve family diets, especially for mothers and children, by increasing the ability to purchase fruit, vegetables and milk. Compared to women in the participatory workshops, the women in the focus groups appeared to put more emphasis on milk, both infant formula and plain cows' milk, as being vital for children's health. However, being able to achieve the 'five-a-day' portions of fruit and vegetables and preventing obesity were also mentioned. Healthy Start was also said to help with family budgeting.

Fruit, veg. and milk is to begin the children's lives healthily and when you are on income support the money won't be enough (Ealing focus group -Somali)

With the support of the vouchers, families would be able to get their five-a-day because they can buy more different kinds of fruit instead of just a particular one because they are on a low budget (Bradford focus group - Urdu).

Telephone Interviews with women from Traveller communities

The three women who took part in the telephone interviews were all very positive about the Healthy Start scheme and thought it made a difference to their family diets. At the end of one interview the woman asked if she could be paid her £20 honorarium in Healthy Start vouchers.

It's 100% a good thing - the only way to make it better would be to give the vouchers for longer, because older children still need healthy food.

Draft recommendations for cross-sectoral workshops

- Maintain the Healthy Start scheme as a means of promoting healthy eating choices for families on low incomes.

5.2.2 Theme 2: Information provision and awareness of Healthy Start

Practitioner focus groups

There was consensus across the groups that it was the responsibility of health professionals to provide information about the scheme and that this was mostly undertaken by community midwives at the first antenatal visit and when signing the application forms, and by health visitors at the new birth visit. However participants were unanimous in stating that a key barrier to providing effective information about Healthy Start was the amount of pregnancy information that is given to women at the first antenatal contact resulting in 'information overload' for women. Community midwives also suggested that the priority at the booking visit was antenatal screening because of the focus on meeting targets. Consequently, Healthy Start was not given high priority. The second most frequently mentioned barrier was the lack of information in a range of community languages and appropriate for women with literacy problems. While participants discussed several strategies to increase awareness of Healthy Start among eligible families, a common theme was that Healthy Start needed a national, high profile media campaign to increase general awareness in the whole population.

Language is a problem. Everything is in English and yet Vitamin D deficiency is a particular problem in Muslim communities (Westminster).

Healthy Start needs to be flagged in the media - TV adverts to promote the scheme – women get most information from TV. Five-a-day used to be in the media and this needs to be (Tower Hamlets).

National electronic consultation

Sixty percent of respondents agreed that they had adequate time to discuss Healthy Start with women. Thirty six percent thought that most women were already aware of Healthy Start when they saw them. The main barriers to providing information about Healthy Start were reported to be overload of information for women, language and literacy problems, lack of availability of leaflets, too few staff, healthcare practitioners' lack of knowledge of Healthy Start, lack of collaborative working and lack of general promotion of Healthy Start.

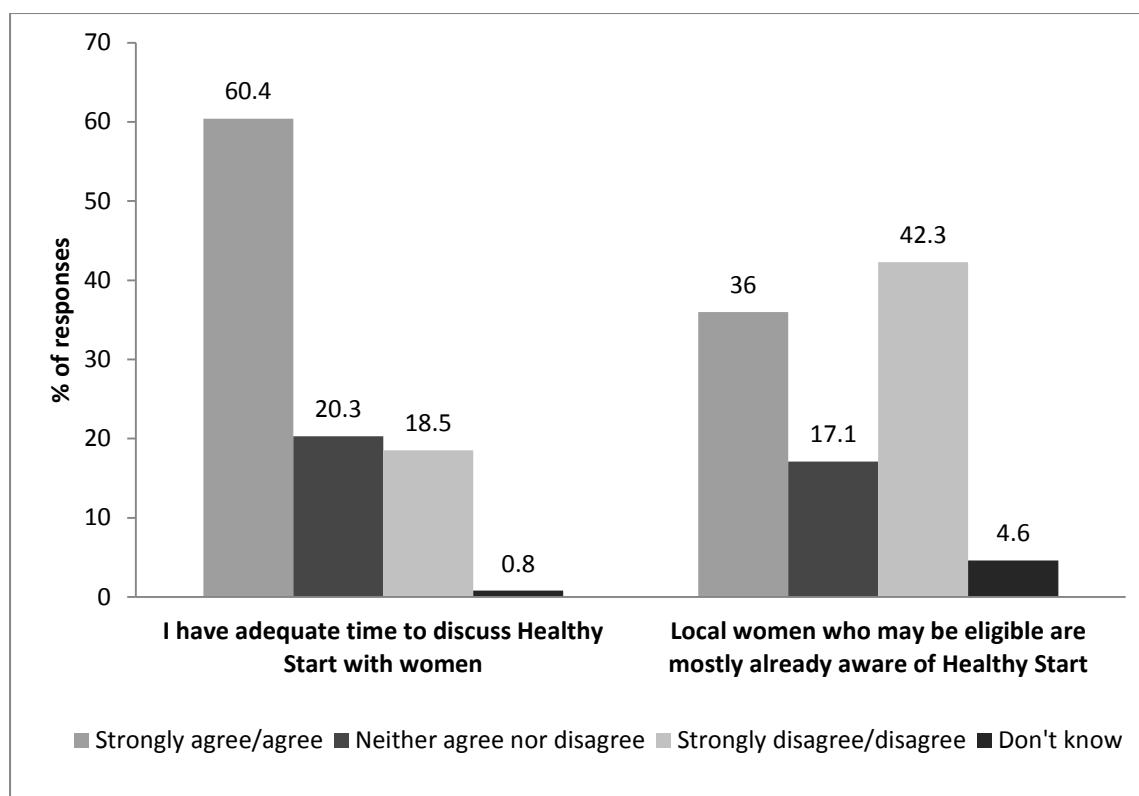


Figure 3: National electronic consultation responses – providing women with information about Healthy Start

Different strategies for promoting Healthy Start within the health service were suggested e.g. using posters or video loops in antenatal clinics and GP waiting rooms, antenatal classes and on registration of birth. Suggestions for promotion to a broader audience included: national media campaigns such as on buses or at job centres, text messaging and social networking, and with information about welfare benefits.

We are planning to do a targeted, focused media campaign including press releases and promotional activities in town centres and benefits offices.

In (name of locality within East Lancashire), the local benefits office is keen to receive some training on Healthy Start so they can start to ensure they routinely promote this to their service users.

It was also suggested that the group of workers who give out information about Healthy Start could be broadened to include peer supporters because vulnerable women may not access mainstream services. Embedding Healthy Start in antenatal and postnatal care pathways and guidelines was proposed. One respondent mentioned the Ealing promotional DVD as an effective way of informing women about the scheme.

An example of good practice was highlighted:

There is a children's centre where the receptionist gives the Healthy Start application leaflet out at the antenatal booking-in session and suggests the expectant mum reads it before seeing the midwife and she can then complete and sign the form with the midwife

Participatory workshops

Providing information about the scheme and the eligibility criteria appeared to be patchy across the agencies involved in its delivery and not all women were told about Healthy Start by their midwife or health visitor. A few women had not found out about Healthy Start until their child was over two years old. Several women had never heard of Healthy Start or knew very little about it. Some women criticised the new version of the Healthy Start promotional leaflet because the eligibility criteria are on page three whereas previously they were on page one where they were more likely to be read.

I'm six month pregnant and until today I didn't know I was able to get Healthy Start
(Greenwich participant)

I was only told about Healthy Start when my child reached three. I was not informed at the time (Bradford participant).

Focus group discussions with women who did not speak English

It was particularly noticeable that among the women who did not speak English, awareness of the Healthy Start scheme appeared to be very low in two of the three focus groups. Where women did know about Healthy Start they had heard of it from health visitors, through benefits staff or from friends or their husbands. Several women who had been in contact with health professionals during pregnancy and their child's first four years, had never heard of Healthy Start. One woman said her health visitor had told her about the vitamin supplements but had not mentioned the vouchers. Women suggested there needed to be more information in appropriate language and formats.

I wasn't aware of this whole voucher scheme and it is only today that I am finding out about it (Ealing focus group - Somali)

Women can come here (neighbourhood project) and get information but if you are new to the country and you have just got married and are pregnant you don't know where to go. Your husband is not going to come asking questions (all participants laugh)
(interpreter, Leeds focus group - Sylheti).

They have to make a promotion to the television in various ethnics (communities) that would be in the UK who might not be aware that the scheme is going on – in their own TV with their own languages (Ealing focus group - Somali).

Some women may have heard about Healthy Start but they don't know what it is for. So they need more information explaining about it like at the children's centre, but not just hand a leaflet over but explain what it is for and how it can be used (Bradford focus group - Urdu).

I see different health visitors and sometimes it's a language barrier and they are coming for a home visit and the most thing they are asking is what are the children eating and what kind of food can I afford. They don't give information about what benefits we are entitled to (Bradford focus group - Polish).

Telephone Interviews with women from Traveller communities

Two women had heard about Healthy Start from health professionals.

Draft recommendations for cross-sectoral workshops

- Increase awareness of the target population of the Healthy Start scheme and what it is trying to achieve e.g. through local and national media campaigns
- Include Healthy Start in routine communications relating to qualifying benefits and tax credits
- Embed provision of information about Healthy Start in antenatal, postnatal and child health pathways and guidelines e.g. through routine enquiry about possible eligibility and provision of information, and audit compliance
- Ensure adequate supply of information in a variety of accessible formats including relevant languages
- Include all of the early years workforce from all sectors in promoting Healthy Start to families and providing health related information

5.2.3 Theme 3: Opportunity for providing health-related and lifestyle information

There were no comments that related to this theme from women, who did not see this aspect as a component of Healthy Start.

Practitioner focus groups

In all six focus groups, practitioners suggested that Healthy Start was not a mechanism by which vulnerable families accessed services earlier in their pregnancies than they otherwise would. In fact some participants were baffled by how that would happen. Rather, participants felt that women were encouraged to access services early in their pregnancies by other means e.g. the antenatal screening programme or, in two localities, specialist midwifery schemes aimed at reaching vulnerable pregnant women early in their pregnancies. In this context Healthy Start was seen as an 'add on'. A further common theme was that health-related and lifestyle information e.g. healthy eating, breastfeeding, were discussed with all women regardless of their eligibility for Healthy Start.

How would it help me identify them earlier? Unless I get a list of families from the hospital I won't know (Ealing).

We have the Gateway Midwifery Scheme - all women eligible for Healthy Start, as 'vulnerable women' are seen very early by midwives. GPs refer women to the Gateway scheme, linked to the Family Nurse Partnership. Healthy Start is discussed and three bottles of vitamins given. More time is given to the vulnerable women and so will be able to discuss Healthy Start (Tower Hamlets)

Healthy eating is discussed in most encounters irrespective of Healthy Start vouchers (Westminster)

National electronic consultation

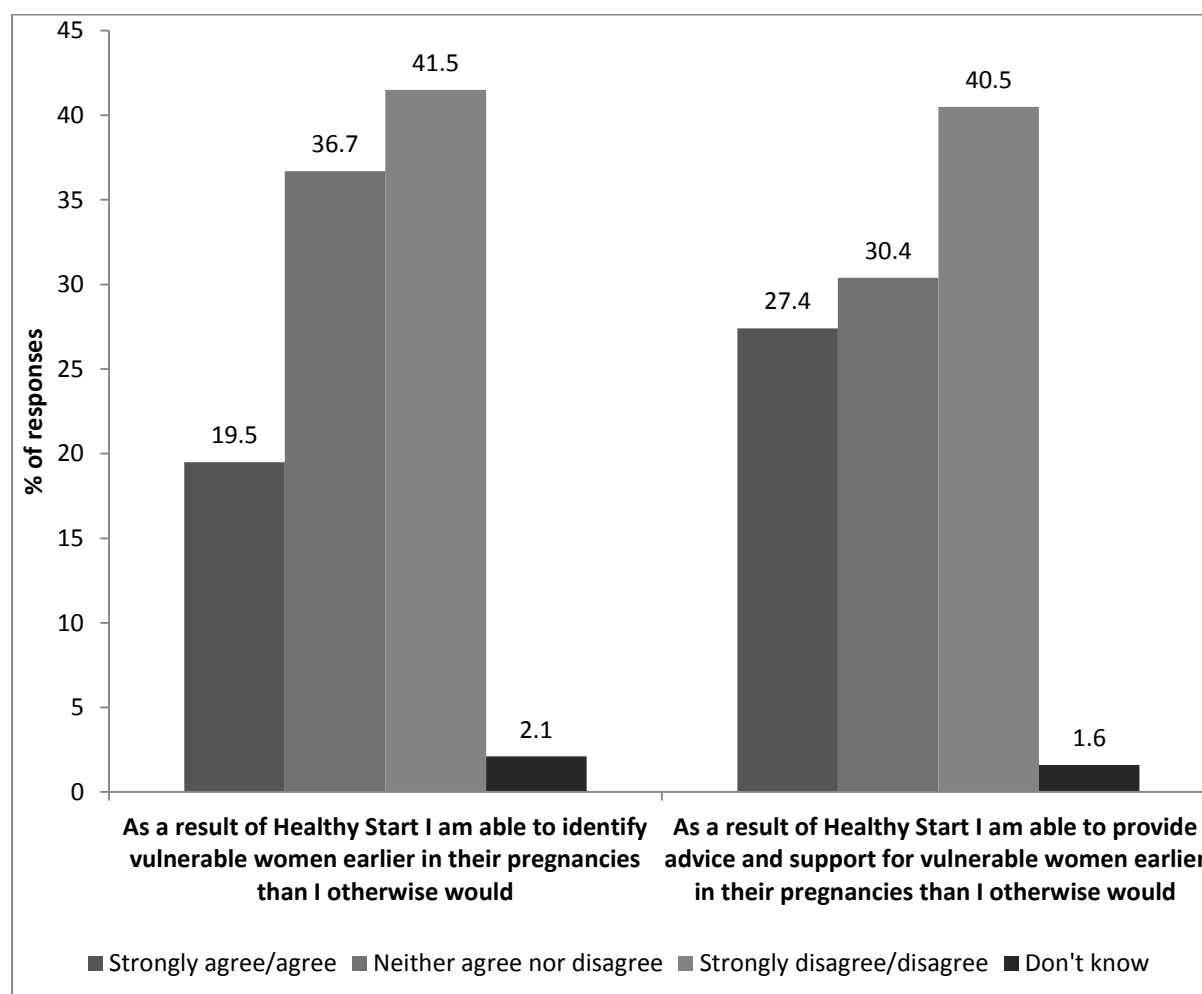


Figure 4: National electronic consultation responses – providing appropriate health-related information

Approximately forty percent of respondents disagreed that Healthy Start enabled them to identify or provide advice and support for vulnerable women earlier in their pregnancies than they otherwise would.

The most important barrier identified by respondents to providing health-related information was lack of time in a rushed clinic when there was so much else that had to be covered, and many mentioned language barriers. Some felt there were professional barriers: staff did not have sufficient training to give the latest information and could give conflicting messages; staff did not feel providing this information was important; or staff believed it was someone else's job and women could consequently fall through the gaps. Some respondents felt that barriers were more about women's lifestyles and priorities; many vulnerable women did not attend for antenatal care until late pregnancy or only went to clinics 'in an emergency'; they frequently changed address, were distrustful of authority, were not interested in healthy lifestyle information or did not prioritise their own health. Some respondents felt there were no specific barriers because they provided the same health-related information to all women regardless of eligibility for Healthy Start; others felt that there was an expectation of providing something special to women eligible for Healthy Start. However, they did not feel they could achieve this because of the difficulty of knowing who was eligible (due to complex benefits or immigration status).

A recurring theme was the need for training across all professional groups so that women would receive consistent information in all settings, and information could be provided opportunistically at any contact. It was suggested that having discussions about health could be incorporated into antenatal Key Performance Indicators, or that a whole-systems approach was needed that would integrate Healthy Start health-related information with the wider anti-obesity strategy. There were creative ideas about how health messages could be provided in new formats -TV and radio advertising (including in minority languages), social networking media, a dynamic and up-to-date website, texting, DVDs in waiting rooms, a jargon-free teen-friendly leaflet, a pregnancy record book, pictures of conditions caused by vitamin deficiency; and in new places - schools, supermarkets, GP surgeries and benefits offices. Other respondents considered organisational factors: for professionals to have more time with clients; for maternity/family support workers to be trained to give this information; or for children's centre staff to be trained to deliver the information and permitted to sign the form.

Some respondents described the general healthy lifestyle work that existed in their areas (not specifically connected to Healthy Start) – such as cooking and weaning groups, a mobile fruit van and community health trainers. Others described how some specialist professionals provided comprehensive health-related information for their clients while working with them more intensively – for example Family Nurses and specialist or teenage pregnancy midwives. Another form of good practice was working in partnership with other services to provide health information, such as children's centres, breastfeeding peer supporters, the Early Start health visiting programme, groups for single parents or young parents, or a Young Mums To Be course. Other examples of good practice were: training for a range of staff to be able to deliver a brief intervention on healthy eating and vitamin D; midwives using the Healthy Start recipe cards with young parents; a breastfeeding DVD; a weekly drop-in antenatal and postnatal group at a children's centre that covered health information every week; and giving pregnant women an information pack before booking so that questions could be followed up at booking.

The mums concerned have multiple complex family and personal relationship problems and lead volatile lives, experience poverty and instability.

There needs to be a greater understanding of public health issues amongst all professionals. Due to the demands of services, professionals need to be in a position where they can identify need and respond or refer. Breastfeeding and healthy lifestyle choices must be core business.

Providing robust health-related information in school settings. Providing health information at any contacts (GPs, midwife, health visitor, youth worker, family nurse partnership road shows). Ensure staff are aware and up-to-date with any changes in health-related information.

We have a specialist team of midwives who care for vulnerable women with smaller caseloads allowing more time to give all the advice.

Children's centres, working in partnership with health providers, offer an excellent way to provide appropriate health-related information to families in an accessible, non-stigmatising way.

Healthy Start alone does not enable early identification of any vulnerability in pregnancy. Poor engagement of health professionals and a lack of understanding of the scheme and support at senior management level mean that this scheme is lost in the many schemes that have rolled out in recent years. Schemes such as Healthy Start and

all other schemes that seek to improve maternal and child health need to be embedded in one overarching strategy that seeks to achieve all aims through one cohesive and clearly defined programme.

Draft recommendations for cross-sectoral workshops

- Develop an overarching strategy to encourage 'vulnerable' pregnant women to make early contact with health services
- Use contemporary methods of making contact with women e.g. text messaging, websites, drop-in centres.
- Map and evaluate good practice initiatives and embed in routine practice

5.2.4 Theme 4: Eligibility for Healthy Start

Practitioner focus groups

Most participants felt that it was the responsibility of health professionals to provide information about the scheme but not to decide on eligibility. Participants had varying perspectives on whether to target Healthy Start information and if so, how to identify who might be eligible. Several participants said it was not difficult to ask pregnant women whether they met eligibility criteria while others thought it would be difficult or embarrassing. A few practitioners were concerned about women abusing the system (i.e. claiming Healthy Start when they were not eligible), but others felt that all women should be given information in case they were eligible or their circumstances changed. A further common theme was that the current eligibility criteria miss women and children who would benefit from the vitamin supplements. This will be addressed in more detail in the vitamin theme. A few practitioners commented that the most vulnerable women e.g. asylum seekers were not eligible for Healthy Start. In one rural area, the temporary nature of much employment was cited as a problem.

Biggest issue is that we are having is to differentiate between those not working (from those who are working) – all health professionals feel the same, nurses, doctors etc. – having to have the conversation (Tower Hamlets).

Misses people who are not eligible for Healthy Start but would benefit from vitamins (Calderdale)

Most vulnerable are not eligible such as failed asylum seekers (Sheffield).

A problem in this area is inconsistent employment. Eligibility is clear for example in long term unemployed or teenager but where circumstances, especially employment, e.g. casual jobs, change of hours – feedback from users – it is difficult if eligible, then not eligible again. System needs to be more reactive to changes in circumstances, sometimes weekly changes. (N.E. Lincs)

National electronic consultation

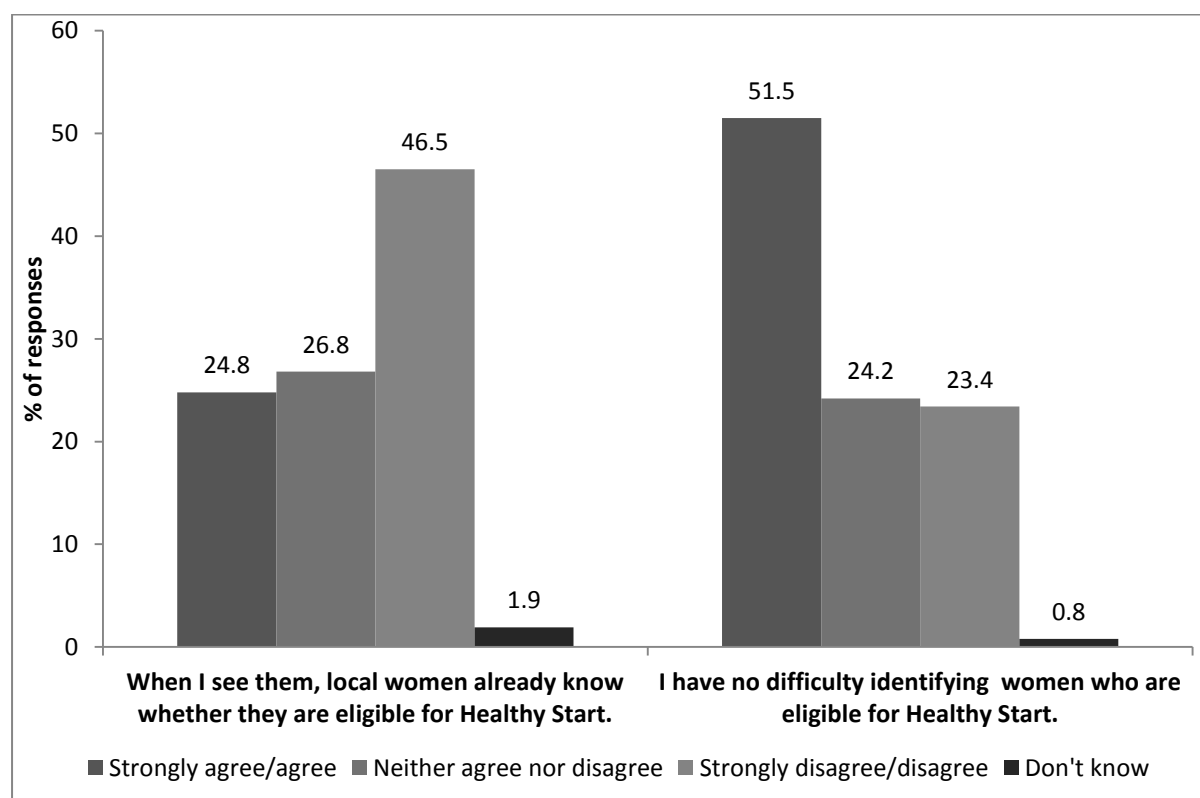


Figure 5: National electronic consultation responses – eligibility for Healthy Start

Only a quarter of respondents agreed that local women know whether they are eligible for Healthy Start when first seen by health professionals and just over half agreed that they had no difficulty identifying women who are eligible for Healthy Start. Almost half thought the eligibility criteria were about right with a third suggesting that more women should be eligible.

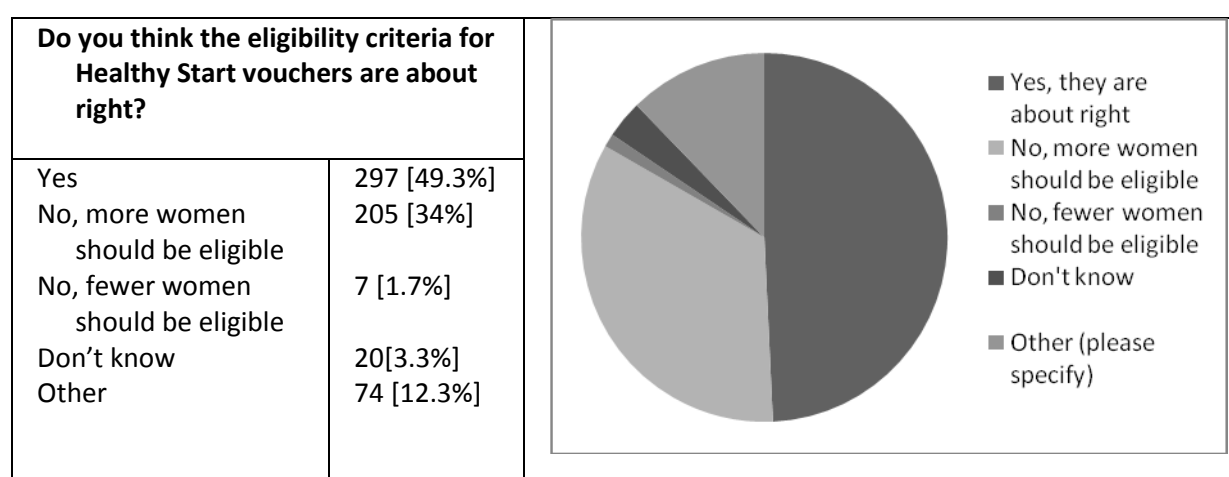


Figure 6: National electronic consultation respondents views of the eligibility criteria for Healthy Start

Many barriers to identifying eligible women were highlighted including the difficulties of discussing their financial circumstances with women, the complexity of the eligibility criteria and health professionals making incorrect assumptions about women's eligibility. Some respondents suggested

that women may not know their household income or the welfare benefits claimed by their partners. The eligibility criteria were felt to exclude those most in need such as asylum-seekers.

Proposed strategies for health professionals were to implement routine enquiry concerning women's entitlements to all maternity benefits including Healthy Start and better cross-sector and interprofessional working. It was also felt that the eligibility criteria could be simplified and that tools e.g. a flow chart or computer programme 'benefit checker' could be developed to make it easier for health professionals and women to identify eligibility. Finally it was suggested that there should be links with the welfare benefits system such that women on qualifying benefits would be automatically informed of and invited to apply for Healthy Start.

Several examples of good practice were reported:

Healthy Start literature is put into the Bounty packs so if some women are embarrassed, they can read the leaflets and make their own enquiries

I generally say to all my mums as a part of the new birth visit 'do they know if they are entitled to the scheme or not', because there is a part of the visit where we ask if they have received their forms for child benefit and registered the birth of the baby and I personally feel it fits in well with this as just a matter of course. I ask everyone regardless.

We have developed a pathway of who is entitled to Healthy Start

Family Nurse Partnership (FNP) makes it easy for us to identify eligible clients as we collect all relevant and necessary information through holistic assessment and family nurses have an extensive knowledge of statutory benefits for young pregnant women and their babies.

Participatory workshops

Women reported that understanding eligibility was complex because it was linked to different welfare benefits before and after the birth. It appeared to be generally understood that families in receipt of certain welfare benefits were eligible but there was confusion around eligibility of those receiving working or child tax credits. Many women suggested the Healthy Start scheme lacked sensitivity to changing financial circumstances particularly for self-employed people. There was some confusion about different eligibility criteria for young women (under 18 years-old) before and after birth. For example, women questioned why Healthy Start is provided universally for teenagers during pregnancy but is means-tested after the child is born. Eligibility was said to be dependent on having a National Insurance (NI) number, which is problematic for young mothers under 16 with no NI number. Many women felt the Healthy Start scheme failed children between the age of four and five, particularly those that are born early in the academic year. It was widely felt that eligibility should be extended to the child's fifth birthday or the primary school term start date. There was a general feeling that the income threshold was too low and excluded a lot of working families on low-incomes who would benefit from Healthy Start.

When I was working I was worse off. Now I am on benefits I'm better off. I get vouchers and other support. The system should encourage working, not being on benefit
(Camden participant)

The system (Healthy Start) is not successful because I have five kids. My husband is self-employed-sometimes he has loads of work and sometimes we have to scrimp and

sometimes he has no work. I want to be able to access the vouchers when my husband has no work (N. Lincs. participant).

Focus group discussions with women who did not speak English

There was considerable confusion about the eligibility criteria, especially for those on tax credits. A few women were sure they met the eligibility criteria and had applied for Healthy Start but had been refused. Several commented on the lack of entitlement for those who worked hard for low wages which was seen as contradictory to the government emphasis on encouraging people into work. Many felt that the income threshold was too low and didn't take account of the rising cost of living. All women felt that Healthy Start should be extended beyond the fourth birthday, most suggesting extending it to seven years or throughout primary school.

It is no good having a threshold of £16,000 because everything has gone up – VAT, petrol, but the threshold hasn't gone up has it? So people on a low income have to cut back everything (Leeds focus group - Sylheti)

I am not eligible but me and my husband are working hard and government encourages you to work hard and then you are not entitled to anything (Leeds focus group - Sylheti).

I get working and child tax credits. I did get the vouchers when I was pregnant but after the baby was born they said the scheme was not available anymore. I don't know why (Bradford focus group - Urdu)

It is very important (to continue Healthy Start beyond the fourth birthday) because the child is still developing up to seven and Healthy Start can play a good role in their life. When they are seven sometimes they might say no we don't want milk - children will choose what they want to have (Ealing focus group - Somali).

Draft recommendations for cross-sectoral workshops

- Streamline eligibility criteria and widen access to make more women eligible
- Take Healthy Start vitamin supplements out of the eligibility criteria
- Provide education and training of practitioners who encounter pregnant women and young families about their role regarding Healthy Start so that they do not see themselves as 'gatekeepers'
- Embed information and means of keeping up to date regarding welfare benefits for pregnant women and young families in the initial and ongoing education and training of health and social care practitioners.
- Consider how to target families whose circumstances change
- Extend the scheme to the child's fifth birthday
- Develop tools to help women and practitioners to identify who is eligible

5.2.5 Theme 5: Applying for Healthy Start

Practitioner focus groups

There was consensus across all groups that the application process is cumbersome, time-consuming and complex and that many women need help to complete the forms, particularly those who do not speak English or who have literacy problems. Various examples of sources of help were given including help from health professionals, from children's centre staff and from NHS bilingual

advocacy workers. In one locality it was reported that women made appointments with the local Citizen's Advice Bureau for help to complete the forms. Time delays in processing applications (reports of up to four months) were seen as a key flaw in the scheme leading to delays in women receiving vouchers and vitamin supplements. Midwives and nurses working with young (under 18 years) women reported fewer problems because Healthy Start is a universal benefit for them during pregnancy. There were no common strategies suggested to overcome these barriers but individual practitioners suggested amalgamating the Healthy Start application form with the Sure Start Maternity Grant application form, providing one central telephone number for the issuing department, and maternity units providing more advocacy workers and bilingual support to help women complete the forms and follow through their applications.

We've done some surveys with health visitors, midwives and GPs. The barriers are mostly around completing the form. The form is too long, too complicated, too many other things to do at the visit. Midwives don't have time to sit and discuss the form. They usually just hand it over and that's a big problem because they (forms) are not coming back (Tower Hamlets).

If there is a slight spelling discrepancy between application form and child benefit data it will come back again (Westminster).

We help them to fill in the form if women can't read and write (Calderdale).

Once you've found out you are eligible there is a long wait to get vouchers – there is an in between stage when they have nothing (N.E. Lincs.)

After a young woman (under 18) delivers, Healthy Start stops until they're getting child tax credit. Sometimes they get forgotten and after three months no vouchers have been received. The Family Nurse Partnership nurse rings up the Healthy Start helpline for them. It should just continue – we are targeting a vulnerable group so why do they stop?

Most of us cannot do this – a health visitor has a caseload of 500 – I can't chase up for them.

The whole system makes it an ordeal – so if your English isn't good, your baby is sick or you are tired – and that's a third to a half of our clients. It makes it a really difficult system (Extract from Ealing focus group discussion)

National electronic consultation

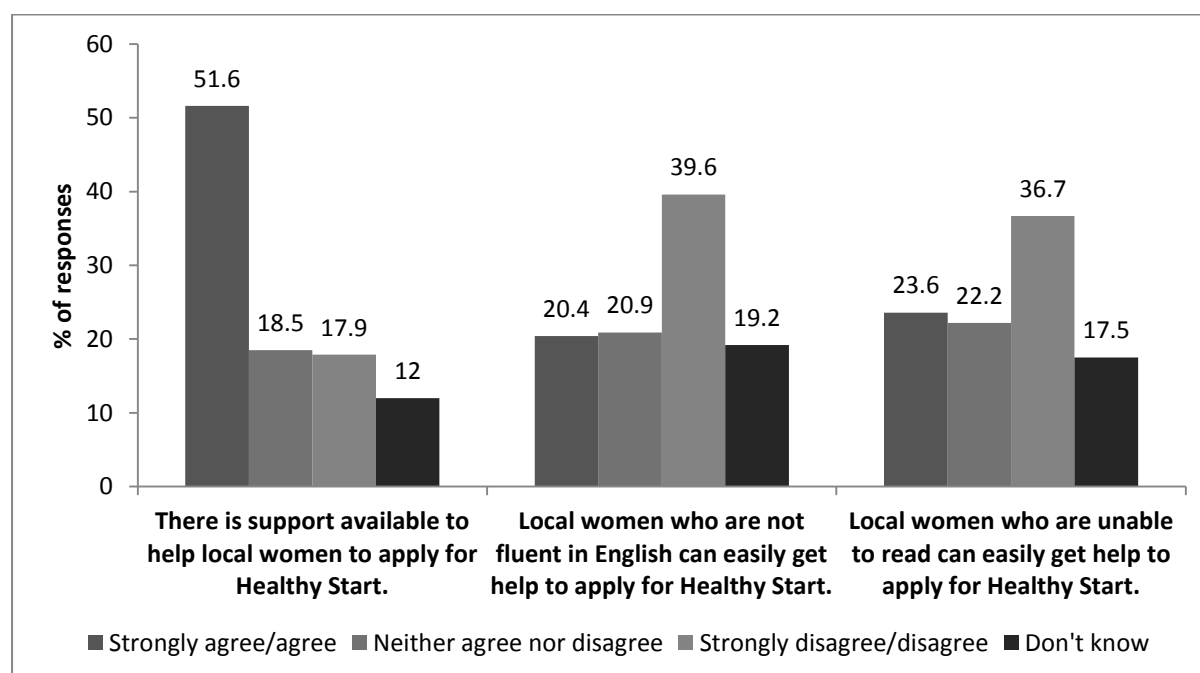


Figure 7: National electronic consultation responses – applying for Healthy Start

While half of respondents thought there was support available to help local women to apply for Healthy Start, only a fifth thought that women who did not speak English or who could not read or write could easily obtain help with their applications.

Respondents overwhelmingly pointed to language and literacy barriers and the complex, fallible application process. The long form was described as inaccessible to many because they could not read English, could not read at all or could not read at a level sufficient to understand it. Health professionals, especially midwives, were too overstretched to have time to sit with clients and help them fill out the form. Some women were confused about whether or not they would be eligible, particularly if they had uncertain immigration status.

The stages of the application process could present a barrier – where health professionals did not have a supply of forms, women might have to collect a form from the children's centre and wait until their next medical appointment for a signature, thereby losing weeks of the benefit. Other vulnerable women who were not engaged with the health services also missed out on Healthy Start. Many respondents described how Healthy Start had a reputation for unreliable and problematic administration, and this put some people off applying. Forms posted were frequently 'lost' (to the extent that one midwife advised eligible young women to send them recorded delivery), but when women reapplied claims were not backdated to their original ('lost') application. The helpline was expensive to call from a mobile phone, and it was slow to be answered. It was complicated to notify Healthy Start of a change of address, and complicated to reapply after the baby's birth, especially where a claim for Child Tax Credit was slow to be processed – this frequently caused the loss of many weeks of vouchers.

Respondents' suggestions covered two main areas: language support and making the application process more straightforward. Many respondents called for forms and leaflets to be easily available in languages other than English. To make it easier to apply, respondents suggested being able to apply by phone and making the helpline a free phone number; having a simpler form; health professionals having the time to help women fill out the form when they gave it to them and signed

it; linking up antenatal and postnatal claims so there was no loss of benefits in the weeks following birth; removing the requirement for a health professional's signature, as that can delay the application, or allowing senior children's centre staff to sign the form. Many respondents suggested that the best way to help women apply would be if all pregnant women and children under four were eligible, as this would remove the need for all form filling and consequent delay. This was felt to be particularly important for the vitamin supplements.

The main area of good practice was in helping women with language or literacy difficulties to fill out the application form. In different areas this was done by children's centre workers, bilingual support workers, advocates, Citizen's Advice Bureaux, Family Nurses, maternity support workers, social workers, a refugee charity, a one-stop shop, or a council-run service. A few respondents went to great lengths to help mothers follow up claims when they had not heard back.

Form-filling is a big barrier for diverse areas with language and reading issues.

Lack of time due to workload. Handing a leaflet and asking someone to read, complete and return is quick and easy; having to sit and explain and then complete can have a big time demand on already heavy workload.

Women send off the forms and hear nothing then when they ring the number are told to submit again which means seeing the midwife again hoping she might have another form and reapplying. And all this takes time and the vouchers are not backdated.

Very rural area, transport poor and expensive, low-income women often only have a mobile with no credit. Can't access assistance readily. Application process for Healthy Start has gained a reputation of being unreliable - I have clients that have put in three applications only to be told that they weren't received. At that point they give up!

Make the food vouchers' distribution through benefit offices and provide universal supplementation of vitamins to pregnant women and children under four.

Our local children's centre programme offers one-to-one support to help families complete the application and get them signed by health professionals. Our one-stop shop approach where all clinics are held simultaneously and supported by the children's centre programme supports this effectively.

Many mothers in my area who apply for the Healthy Start vouchers send the claim form off, but are often told the form has got lost in the post or the Issuing Unit has never received the form. I have telephoned many times and complained on behalf of the mother and I have also faxed a second copy to the Healthy Start Issuing Unit. If I sign the Health professional's statement I also take a photocopy for the mother as evidence of the date that the form was sent. The vouchers take many weeks/months before they are received by the mother. The mothers find it easy to use their Healthy Start vouchers but do not find it easy receiving them.

Participatory workshops

The most important route into the Healthy Start scheme was through midwives and health visitors. Women felt access to the scheme was generally good but varied according to the capacity and awareness of the health professionals involved. The fact that eligibility for a health initiative was means-tested through the benefit systems meant its complexity caused logistical problems. This included delays in receiving time-limited vouchers, for example if any personal details in the application form differed from those held by the benefits system. Several women described

experiences of applying once and being refused and applying a second time and being accepted and they did not understand the reasons for this. Some women assumed that if they did not hear from the issuing department it meant that they were not eligible whereas others had followed up their claims successfully.

I had to keep applying because they kept telling me I wasn't eligible but I was
(Greenwich participant)

I don't speak English so it is difficult. I don't like filling in forms (Bradford participant)

Focus group discussions with women who did not speak English

Understanding and completing forms was a major challenge for women who did not speak English and many said they sought help from friends and family, bilingual health and social care practitioners, children's centres or community services and projects. The interpreters at the focus groups all said that they helped women to complete application forms if asked. Women also reported that it was impossible for them to use the Healthy Start helpline to follow up their applications. One woman brought a letter to the focus group that she had received from the Healthy Start Issuing Unit because she did not understand what it said. Women said they found filling in forms intimidating and worried that if they made a mistake they would not be accepted for Healthy Start.

(Name of neighbourhood project) staff or health visitors help to fill in the forms. I didn't deal with the forms. Forms are scary things, official things. If I make a mistake I won't get it (Healthy Start) (Leeds focus group - Sylheti)

One woman applied once and didn't get it and when she reapplied she did get it
(interpreter, Leeds focus group - Sylheti).

I got the information and filled in the forms but I never got a reply back. There was no point applying again and again and I couldn't ring to ask because of the language barrier. (Bradford focus group - Urdu)

Telephone Interviews with women from Traveller communities

One woman said that applying for Healthy Start was difficult because she could not read or write.

Draft recommendations for cross-sectoral workshops

- Provide consistent and proactive support for women to complete application forms
- Streamline the application process e.g. link it to other benefits and avoid the need for multiple applications
- Provide alternative to posting application forms e.g. telephone, online options
- Provide forms in different languages and formats
- Speed up the process of authorising claims and issuing vouchers and inform applicants that if they do not hear within x days/weeks, they should follow it up
- Provide a simplified free phone helpline with different language options for applicants to follow-up claims
- Extend the categories of practitioners who can sign the form/remove the requirement for a signature as this does not appear to be achieving the aim of providing health related information

- Make the Healthy Start scheme more sensitive to changing financial circumstances e.g. seasonal work, self-employment
- Streamline timing of application with routine antenatal visit schedule so that application forms are signed as early as possible and women do not have to make extra visits

5.2.6 Theme 6: Using Healthy Start vouchers

Practitioner focus groups

While some practitioners felt that the value of the vouchers was sufficient to make a difference to family diets, it was notable how many practitioners did not know the current voucher value. There was also a conspicuous lack of knowledge among many practitioners about where vouchers could be exchanged in their local areas other than at large supermarkets. In all focus groups the potential for vouchers to be used for non-allowable products, particularly when redeemed through smaller retailers, was discussed, but it was difficult to ascertain whether any practitioners had first-hand experience of this. Several practitioners asked about the allowable products; many were not aware of the change to include frozen vegetables, which had occurred a few months prior to the focus group discussions. A common theme was that the practitioners felt they had insufficient information about where vouchers were redeemed and for what products in their local areas. Commonly suggested strategies for improvement were more marketing of the scheme to parents and to retailers and the need to increase the number of smaller, local retailers and market stallholders participating in the scheme. In one area market stallholders had been encouraged to register and this was felt to benefit eligible families. In all but one focus group, practitioners said that they were more focussed on the vitamin aspect of the scheme to the detriment of working on strategies to improve the uptake of vouchers.

It will make a difference to fruit and vegetable intake. If you think about the supermarket you can buy quite a lot (Ealing).

It would be good if cheaper market stalls could take vouchers but would it be a lot of administration? It would make such a difference (Ealing).

We don't know what percentage of vouchers is used, where or what for (Westminster).

Where there has been a community buy-in for food outlets that can provide food for vouchers there have been real positives e.g. work with local market fruit and veg. stallholders are now able to take vouchers – active promotion and marketing enables the scheme to work – better than supermarkets where they don't necessarily get the full value of the voucher, at a market stall you can get the full value (N.E. Lincs.).

Fruit and veg. part, we are aware we need to do a lot more work. There is a really big focus on the vitamins, but we are aware we need to be encouraging the uptake of vouchers (Tower Hamlets).

Many use vouchers in supermarkets for a big shop and there will be healthy and unhealthy foods in there and alcohol (Sheffield).

National electronic consultation

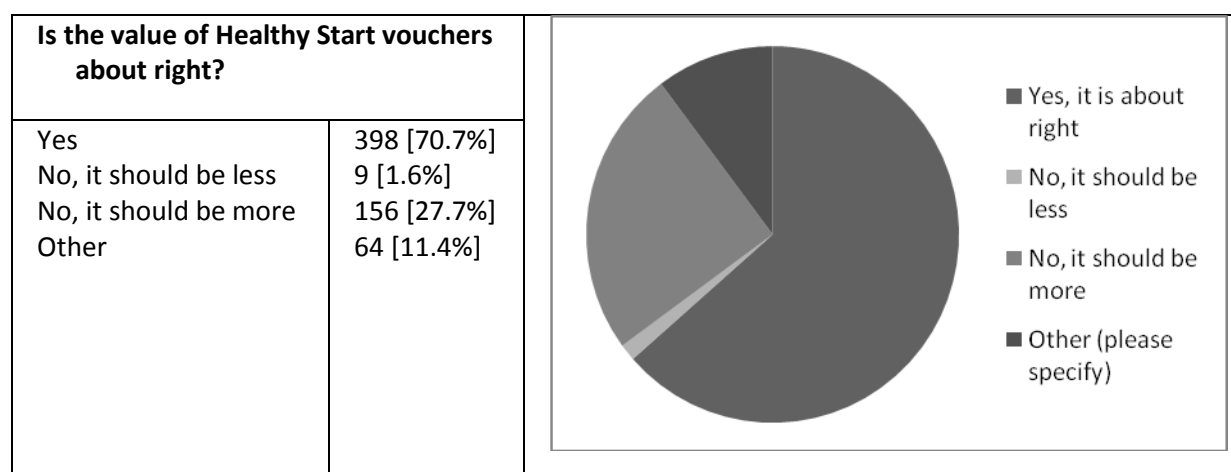


Figure 8: National electronic consultation responses – the value of Healthy Start vouchers

Over 70% of respondents thought that the current value of Healthy Start vouchers was about right with 28% suggesting the value should be increased.

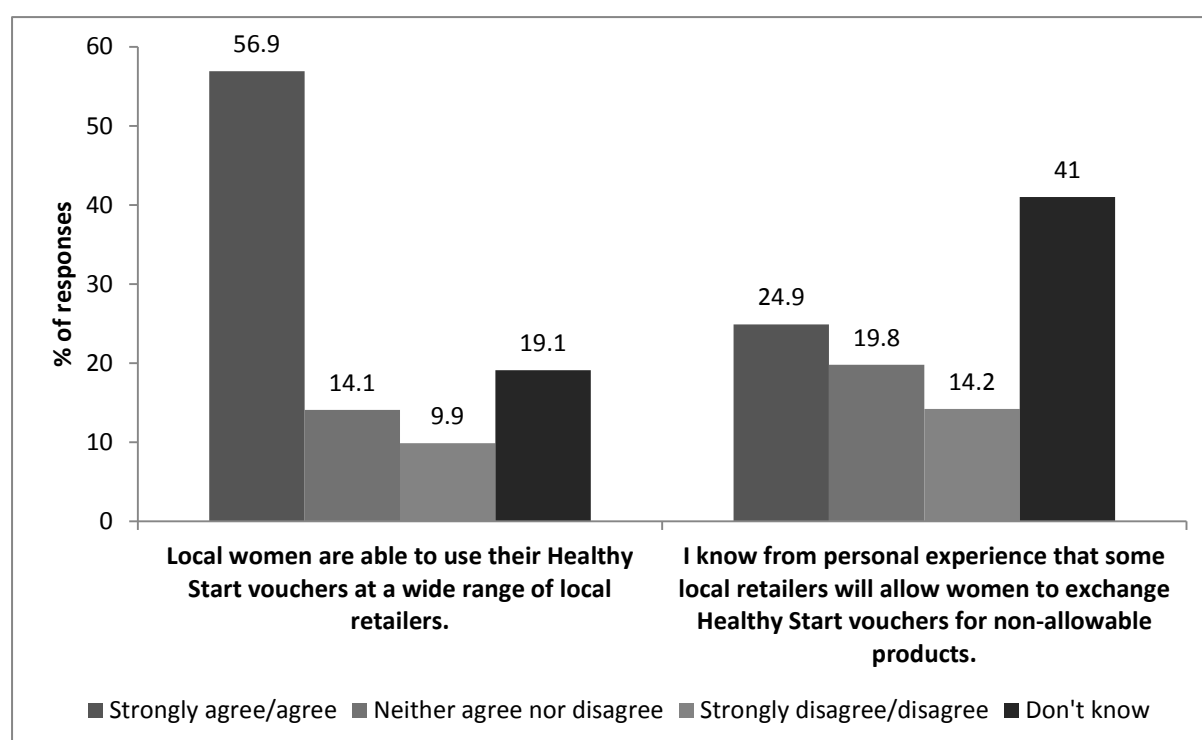


Figure 9: National electronic consultation responses – using Healthy Start vouchers

Over half of respondents thought that local women could use their vouchers in a wide range of shops with nearly a fifth responding 'don't know'. Nearly a quarter reported that they knew from personal experience that some local retailers exchanged Healthy Start vouchers for non-allowable products.

The two most important barriers to using vouchers that respondents identified were lack of knowledge of which shops accepted the vouchers locally, and the physical difficulty or expense in getting to a shop that accepted them, particularly in rural areas. Many respondents noted that while

supermarkets provided the best value, many women rely on small shops for cultural or geographical reasons and there were a range of problems identified: in some areas small shops were not registered with the scheme; some exchanged the vouchers for cash or for items not permitted by the scheme; some did not give the customer full value for her vouchers or applied idiosyncratic rules such as insisting the whole value of the voucher must be spent on one type of product; some did not stock fruit and vegetables or had limited choice and quality. Some respondents said that local retailers, fruit and vegetable co-ops and milkmen had administrative problems registering for the scheme or reclaiming the voucher value and this was the reason that they had not joined or had left Healthy Start. A different type of barrier identified was the embarrassment or stigma associated with using the vouchers for some women, particularly if the shop assistant was unfamiliar with Healthy Start. Some women were also said to be confused about the meaning of the date on the vouchers. A considerable number of respondents said they were not aware of any local barriers or that the scheme was working well locally.

The most popular suggestions were to improve local information about which retailers accepted vouchers, and to increase the number of local outlets. There were two main ideas about improving information – firstly, giving women a list of local retailers (and it was suggested that this could be done by children’s centres, nurseries, health professionals, or sent out with the vouchers); and secondly, advertising of individual shops’ participation with conspicuous signs in the window. Some respondents suggested that shops who take part in Healthy Start should have posters in the store and stickers identifying eligible items, and could even be encouraged to run special promotions on Healthy Start items for women who use vouchers.

The ideas about increasing local availability reflected the examples of good practice in other areas – engaging more small shops, signing up food co-ops and food vans, making foods available through children’s centres. Several respondents mentioned that online shopping was cost-effective for women in rural areas or with large families and that vouchers should be redeemable online. Some suggested that all retailers of Healthy Start goods should be automatically opted into the scheme. Some respondents had suggestions about the physical vouchers – either that they should be small enough to fit in a purse, or should be replaced with an electronic card that would be automatically topped up for each week of eligibility (it was also felt that this would prevent the vouchers being spent on non-Healthy Start items).

Half of the respondents who answered this question said they did not know of any good practice. Those who did know of good practice described either community outlets for buying fruit and vegetables, or the efforts that had been made locally to identify all retailers participating and to provide this information for women. Some also described the work that had gone into promoting Healthy Start to local retailers and encouraging them to sign up, or improving the range of fresh fruit and vegetables on offer in small shops through the Buywell scheme. The respondents who described increasing local access to community outlets accepting vouchers for fruit and vegetables reported a range of participants – food co-operatives, sometimes based in children’s centres; street markets or other community markets; mobile food stores or fruit and vegetable vans.

Rural area, some women have to travel up to 11 miles, often by bus, to spend vouchers - not cost effective. No small 'corner shops' will exchange locally.

Women not always aware of which shops are accepting vouchers. Lack of fresh fruit and veg. being sold in a lot of local shops - this is why I guess a lot of families exchange their vouchers in supermarkets rather than local retailers. A large percentage of shops registered in our area to accept Healthy Start vouchers are pharmacists (who only sell formula milk). It is an ongoing piece of work to identify more local greengrocers to sign up to the scheme.

It is not clearly advertised on the shop door if they accept the vouchers. Most mothers do not want to ask the shop if they take them as it then identifies them as being 'poor'. Some retail assistants don't know if they accept them and have to ask the mother what the voucher is for.

All retailers who are licensed to provide Healthy Start food should be required to use highly visible promotional materials throughout their fresh foods, fruits and fresh milk aisles.

Redvales Children's Centre offer £5 worth of fruit and veg. for £3.10 voucher. This encourages attendance at the children's centre.

There is a local market set up in the local church, they sell fruit and veg. at very reasonable prices, the women can use their vouchers there.

We have popular fruit and vegetable cooperatives operating in some of the areas which do not have a good greengrocer. This allows bags of mixed vegetables to be bought rather than the big bags offered by many supermarkets.

Our environmental health officers helped raise the profile of Healthy Start and encouraged more retailers to join.

Participatory workshops

There appeared to be a general understanding of what could be purchased with the vouchers although there was some confusion about frozen and canned vegetables and fruit. Women questioned why composite foods such as fruit juices and fruit yoghourts were not available on the scheme. Some thought other basic food items should be included e.g. bread, meat, eggs and dry goods (rice, lentils and beans). Some women said it was difficult to get culturally acceptable fruit and vegetables if vouchers were not accepted at the local market.

A wide disparity between how retailers deal with vouchers was reported. For example some retailers only allowed one voucher per transaction, others only two. Some retailers were said to check every item while others were very casual about checking what people bought with their vouchers. Vouchers could be used at self-service checkouts where scrutiny of purchases was more relaxed with assistants checking the date of the vouchers but not what had been purchased. Women found it problematic to always spend the full value of the vouchers in one shopping trip.

The stigma women felt when paying for shopping with Healthy Start vouchers was not universal but was felt by many. Some reported judgemental attitudes of retail staff or other customers. Suggestions to overcome this included loading the value of vouchers onto a swipe card.

It was not widely known that women could ask retailers, including markets, community based food projects or milk delivery vans, to register to accept Healthy Start vouchers. Many women felt that the scheme was not promoted enough among independent/local shops. Consequently there were not enough retailers, especially in rural areas, that accepted the vouchers. This led to some mothers making expensive trips to supermarkets. Some women felt that vouchers should be able to be used for online shopping.

Most women suggested that goods purchased with vouchers tended to be shared amongst the family when one child became too old to be eligible, although some women did compartmentalise their shopping using the vouchers to buy food for a specific child.

Many women said it was easy to exchange vouchers for non-allowable goods or cash (although they did not personally do this). Shopkeepers (mainly of independent small shops) that knowingly exchanged vouchers for cash or non-voucher items 'charged' for that e.g. £2 cash given for one £3.10 voucher. Women regarded this as an issue they were unhappy about and strongly criticised those that abused the scheme in this way. Women felt the value of the vouchers made a difference to their shopping and eating but that it had not kept pace with rises in food prices. The value was not enough to cover the cost of infant formula

Some shops trade vouchers for other goods, money or scratch cards (Leeds participant)

You need to make a choice between buying fruit and veg. or formula whilst there is a baby (Leeds participant)

You should be able to buy baby food in a jar with the vouchers (Southwark participant)

I shop once a month but supermarkets won't take more than three vouchers at a time - problems with bills according to supermarket staff (Calderdale participant)

I buy more Western veg. as I can't get Asian veg. with the voucher – the market doesn't take vouchers (Camden participant)

The vouchers do not cover the expenses at all (for fruit and vegetables) (Bradford participant)

I have money problems now I am not on vouchers. I have reduced fruit and veg. (Bradford participant)

I asked the local convenience store to register for the scheme and they did (Westminster participant)

People automatically know you are on benefits but I don't feel judged – some do (Tower Hamlets participant)

Not enough shops take the vouchers. The supermarket is a bit of a walk with a pram (Tower Hamlets participant)

Focus group discussions with women who did not speak English

Most women thought the current value of the vouchers helped but that it should rise with the cost of food. Many women emphasised the need for children to drink a lot of milk and this used all their vouchers. Some women had problems finding the kinds of fruit and vegetables they liked in supermarkets. Some thought you could only use the vouchers for milk and many referred to the vouchers as 'milk tokens'. Others were not aware that they could buy frozen vegetables and fruit.

Most women said they used their vouchers at the major supermarkets. In one locality where there were no major supermarkets within walking distance, women said they did most of their shopping at small independent shops that did not accept Healthy Start vouchers. One woman described how the supermarket only allowed her to use three vouchers at a time. It was thought that independent retailers and market stallholders might be reluctant to register for the scheme because they didn't understand it, didn't speak English or were worried that the government would find that they owed tax.

A few women said they felt embarrassed using their vouchers because it identified them as being on benefits. Several women suggested the money would be better added to income support while others thought this might not be spent on children. In all three focus groups women reported hearing of other people using Healthy Start vouchers for non-allowable products. There were mixed views about the information sent with the vouchers. Many women could not read it because it was only in English. Others found it helpful; one woman described using the recipes to cook with her child. Several women complained that the recipes were 'too bland' for their tastes.

I only knew about the milk not the other things because they are milk token vouchers (Leeds focus group - Sylheti).

Another problem - when you have three children of the age of under four you're ending up having eight vouchers in a month. So if you use it in the shops, I come across it that they say you can only use three, you can't use four at a time (Ealing focus group - Somali).

We can find the food we want but most of the local shops don't take the vouchers. The supermarkets don't have what we want to eat – they are bringing it in, they are trying but mostly it is corner shops (Leeds focus group - Sylheti).

Shops (small independent retailers) would not want to get involved in the form-filling or probably they are not aware of the scheme. If we don't know about it how would the shopkeepers know? (Leeds focus group - Sylheti).

We know that some exchange the vouchers for tobacco or bread at 'off licences' When a person is addicted to alcohol or cigarettes, they will think it is good to use the vouchers for that at the off licence but we think this is very bad because it is essential to the family to use for the children (Ealing focus group - Somali).

You could get your five-a-day if you could buy grapefruit juices, fruit squash, fruit yoghurt and things like that (Bradford focus group - Urdu).

Telephone interviews with women from Traveller communities

All three women felt that the vouchers made a difference to their shopping allowing them to buy more milk, fruit and vegetables although they had all used the vouchers to buy infant formula. The vouchers allowed one woman to provide a greater variety of fruit and now she no longer received vouchers for her older child she said she could not experiment with different types of fruit because she could not afford any waste. One problem with the vouchers was that the supermarket only allowed two vouchers to be used at a time and that did not cover the cost of a tin of infant formula. All three women said they had not heard of anyone exchanging vouchers for non-allowable items.

In the week the vouchers come we can eat vegetables.

To improve Healthy Start it could be more controlled – don't allow little shops to take part, so people are forced to go to supermarkets where they'll see the kind of food (fruit and vegetables) they're supposed to buy for children.

When the vouchers stopped, I felt it – I felt a big difference in my budget – I felt a massive difference.

Draft recommendations for cross-sectoral workshops

- Increase value of vouchers in line with rises in food prices
- Promotion of Healthy Start should include clear messages about the goods which can be bought with Healthy Start vouchers including recent update to include frozen fruit and vegetables
- Health promotion needs to address misunderstandings about what constitutes healthy fruit and vegetables that can contribute to the five-a-day.
- Promote Healthy Start to small retailers, market stalls, community food projects and value supermarkets to increase outlets and options for women.
- Ensure that retailers registered for the scheme clearly indicate this and that local lists of registered retailers are easily available for women and practitioners
- Work with retailers to ensure the system for registration for Healthy Start and redeeming the value of vouchers is as simple as possible
- Improve monitoring of the scheme to eliminate as far as possible the use of vouchers for non-allowable goods
- Work with retailers to ensure consistency in how vouchers can be used (e.g. how many can be accepted in one transaction and for what goods) and to eradicate negative attitudes from retail staff
- Provide vouchers in smaller denominations, sized to fit in a purse or consider adopting a swipe card system
- Ensure the information on healthy eating and suggested recipes sent to women meet the needs of women from diverse populations and backgrounds.

5.2.7 Theme 7: Healthy Start vitamin supplements

Practitioner focus groups

Practitioners had most to say about this theme to the extent that it appeared that some participants perceived Healthy Start primarily as a vitamin scheme. This could be explained by the extremely low uptake of Healthy Start vitamins compared to vouchers and the subsequent attention paid to improving vitamin distribution. However it may also reflect that the regional Healthy Start co-ordinators recommended localities in which to conduct the focus groups that were known to be working on the vitamin aspect of the scheme.

There was a high level of consensus within and across localities about the key issues. The first was that all groups felt that there was little awareness among most families and some practitioners, including GPs, of the importance of vitamins for mothers and children and the consequences of deficiencies. Vitamin D was highlighted as being particularly important.

Practitioners overwhelmingly expressed frustration at the challenges of getting Healthy Start vitamins to mothers and children. This included complex ordering and re-imbursement systems, uncertainties about who was allowed to give out vitamin supplements, concerns about storage and shelf-life, the challenges of distribution and the accessibility of outlets for mothers and children. This was further complicated by the role of some GPs in prescribing proprietary vitamin supplements.

The main strategy to overcome all of these barriers was the suggestion to provide Healthy Start vitamin supplements free to all mothers and children. Nearly all practitioners felt this would benefit more mothers and children, would be more cost effective than the current complex system, and would free time for public health leads to work on other aspects of the scheme. Practitioners cited the time senior public health personnel were spending on devising and implementing strategies to increase the uptake of Healthy Start vitamins in their localities and the need to employ support and

administration staff to operationalise such strategies. None of the practitioners in the focus groups felt that they had solved the problems highlighted above in their localities, although some had increased uptake substantially from a low start e.g. one area had increased uptake from 1% to 7% .

A range of strategies to improve uptake had been tried, were being piloted or were planned for the future. These included generally promoting the scheme to raise awareness of the need for and availability of Healthy Start vitamins, selling vitamin supplements to women who were ineligible for Healthy Start, distributing vitamin supplements through children's centres, health centres, and health professionals distributing vitamin supplements to eligible women and children. In one locality a pilot was planned in which Healthy Start vitamins would be available in local pharmacies as part of the 'minor ailments' scheme but getting the vitamins to the pharmacies was proving challenging. Participants in several focus groups were under the impression that the dosage of vitamin D in the supplements was not sufficient to prevent deficiency.

Families don't know the importance of vitamins and neither do the professionals (Calderdale)

They are cheap, so it shouldn't matter if they are given to everyone. Order in small quantities frequently as they go out of date then every health visitor can carry them (Calderdale)

A problem is how to manage supplies. They are almost rationed because demand exceeds supply. We might put in an order for 100 bottles of adult vitamins and the suppliers restrict it to 20 at a time and it is not enough (Ealing).

Decimation of children's centres will affect distribution. Vitamins need to be around the corner. Women will not travel big distances. There were 21 Sure Starts - I don't know what is going to happen to the buildings but going down to six - so you were never more than a few blocks from a Sure Start Centre. Women are not going to travel to them (clinics) just to get vitamins (Ealing).

Voucher for vitamins is not clear. It is part of a letter which gets thrown away so there is no evidence of entitlement. National Healthy Start team say just give them vitamins even if they don't have the right bit of paper but that impacts on supply. We are unable to replenish supply without proof you've used them so the process falls down. (N.E. Lincs.)

Vitamins are under-claimed across the city –it is picking up because we recently switched to vitamins being available in all children's centres rather than given out by health visitors (Sheffield)

Cost of the admin. that goes into deciding who can and can't have them is more than providing them to all pregnant women (Sheffield).

Women ask and you feel terrible not being able to give vitamins to women who request them. I think they should be for everyone regardless of income (Tower Hamlets).

We have me (senior public health role) spends a lot of time on it, a public health adviser who spends a lot of her time on it, someone working just on the distribution and trying to set up the monitoring. That is a lot of money and funding for the free ones and still it is not great. We've got a long way to go and this is only vitamins. I haven't had time to be looking at fruit and veg. (Tower Hamlets).

I asked the Primary Care Trust at Hammersmith and Fulham where they distributed vitamins to and no-one could tell me (Westminster).

Folic acid is needed pre-conception or in early pregnancy ideally and Healthy Start is too late for that (Westminster).

National electronic consultation

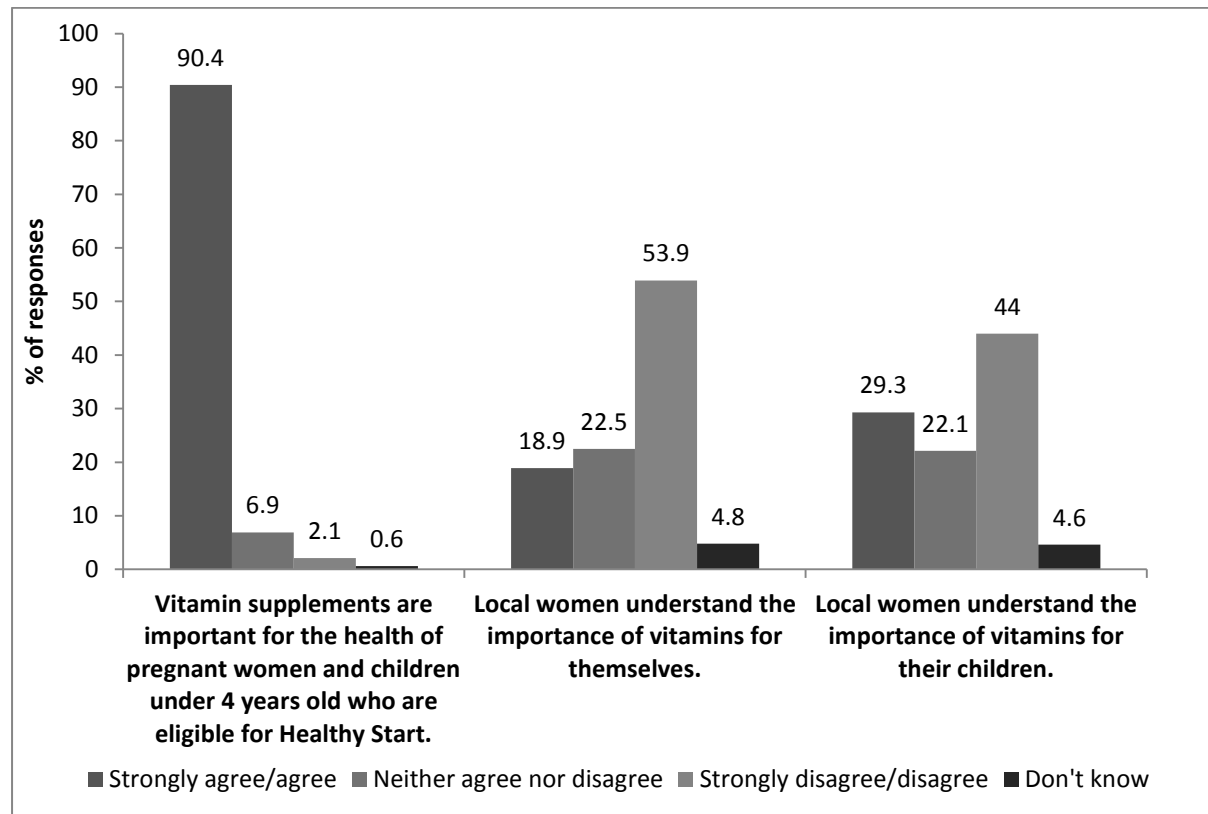


Figure 10: National electronic consultation responses – importance of Healthy Start vitamins

Nearly all respondents (90%) agreed that vitamin supplements were important for the health of pregnant women and children under four years old who are eligible for Healthy Start. However fewer than 20% thought that women were aware of the importance of vitamins for their own health and just under 30% thought women were aware of the importance of vitamins for their children's health.

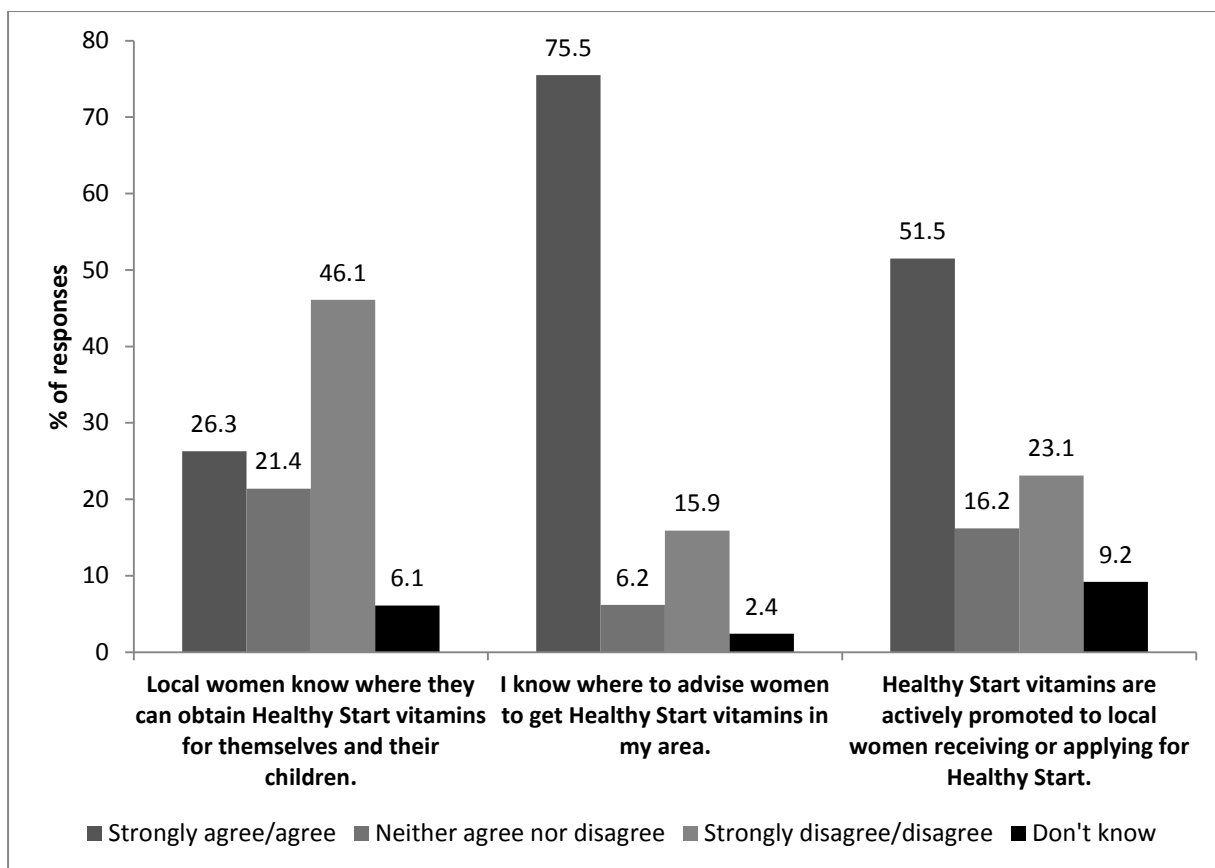


Figure 11: National electronic consultation responses – promoting Healthy Start vitamins

Approximately 70% of respondents agreed that all women and children under four years old should receive free Healthy Start vitamins regardless of their eligibility for Healthy Start vouchers.

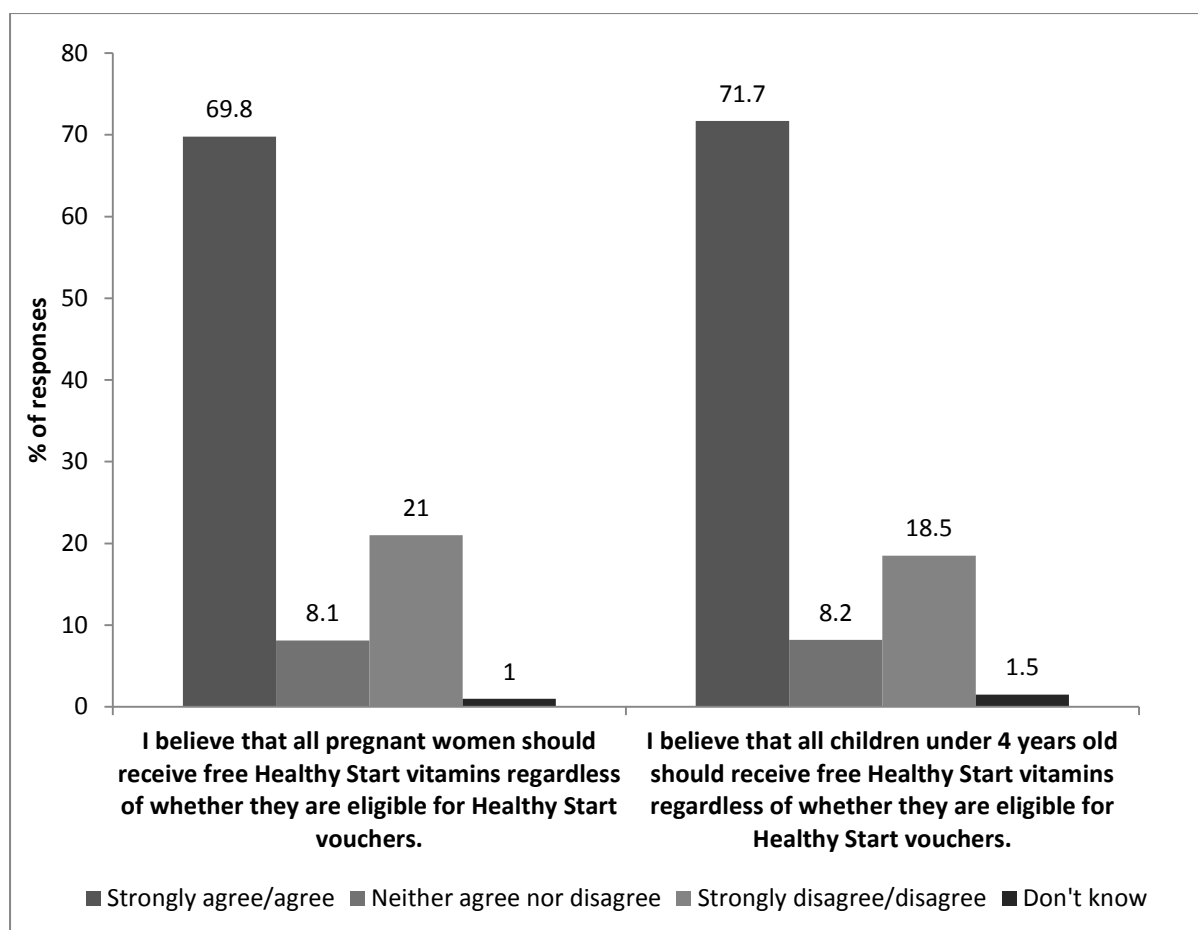


Figure 12: National electronic consultation responses – universal provision of Healthy Start vitamins

By far the most significant barrier identified by respondents to uptake of vitamin supplementation was the complexity, confusion and weakness of the distribution system. This resulted in vitamin supplements being available only in a few locations sometimes with restricted opening times, requiring expensive and inconvenient journeys; problems with maintaining supply and short shelf-life; and several areas reporting that there was nowhere at all that distributed the vitamin supplements for pregnant women (as maternity care was organised by the acute trust while Healthy Start vitamin supplements were ordered by the PCT). In some areas the GPs and pharmacies would not participate or, in the case of some pharmacies, demanded unaffordable fees. A linked issue was that in some areas the distributors refused to sell the vitamin supplements to women who weren't eligible to receive them for free, because of concerns about handling cash. For some respondents the local distribution system was so unreliable that it was better to prescribe supplements antenatally to be sure they were available.

A second theme was that health professionals did not give a consistent message about the importance of vitamins, especially vitamin D. This was reflected in a few of the responses from health professionals who expressed their personal opposition to vitamin supplementation. Health professionals passed on to parents their confusion about whether children needed supplementation if they had a 'healthy diet' or were formula fed, and some parents believed it was not safe to take any supplements in pregnancy. Respondents felt that the fact that free Healthy Start vitamins are restricted to a sub-group of the population that excludes many women and children at risk of vitamin D deficiency (e.g. people from Black and minority ethnic communities not on benefits, those

who are obese) potentially undermined local attempts to promote the vitamin D message. This was because it was seen to associate vitamin D deficiency with poverty or poor diet.

A third theme was the confusion for women about their entitlement letter. Many respondents said women did not or could not read the whole letter, and did not know what to make of the green slip that states it is not a voucher. It was illogical from women's point of view that the vitamin supplements were not integrated with the food voucher side of the scheme (or alternatively with free prescriptions).

Respondents' suggestions mirrored the barriers they had identified and the good practice reported from some areas in previous questions. The two most frequent suggestions were universal supplementation for pregnant women and young children to normalise vitamin supplements, and more accessible distribution outlets. In particular it was emphasised that vitamin supplements should either be given out as a routine part of care by midwives and health visitors, or they should be widely available at places where women go anyway: supermarkets, pharmacies, children's centres, and GP practices. General ideas for promotion including using Bounty packs, a media campaign, waiting room DVD/posters, birth registration, and centrally-produced posters that could be customised with the local distribution points. Some respondents said there should be a clearer vitamin 'voucher', and that it was important to address professionals' attitudes and knowledge with training.

Respondents described a variety of schemes to improve distribution, by doing away with the application process and/or by physically handing out vitamin supplements during health contacts. Some areas were providing universal supplementation, and in some areas midwives were able to give Healthy Start vitamins to all pregnant women at first booking – either one bottle or a whole pregnancy supply. Some respondents reported that health visitors were able to give out Healthy Start vitamins, either in baby clinics or on home visits, and in some areas they were also distributed by outreach workers, Family Nurses and specialist midwives (teenage pregnancy or substance misuse). One area had successfully engaged with community pharmacies, and another rural area had a scheme whereby parents could place an order for vitamin supplements to the children's centre via their local school. Others described successfully using children's centres for distribution where these were already a well-used and accessible community resource, and noted that selling the vitamin supplements to non-beneficiaries helped to raise their profile.

As a community midwife I cannot get a supply of Healthy Start vitamins for eligible women. This has been ongoing since the beginning of the scheme with health visitors being supplied by the PCT but the acute hospital trust not supplying them for the midwives they employ. Therefore the women can get vitamins for their baby but not for themselves during pregnancy. I have contacted the Trust pharmacy, the PCT and the Department of Health about this but am having no success.

Many women remain reluctant to take vitamin supplements during pregnancy unless promoted or prescribed by their GP. Many professionals (including GPs) are unwilling to promote as they feel that vitamins are unnecessary where women/children may have a healthy diet.

The scheme is the most complicated one to implement that I have ever come across. It should all be so simple, but after months of work on it we still have not cracked it. Until we have cracked the supply chain and distribution issue we cannot promote uptake of the vitamins. We also have no budget –in theory it should cost 'nothing' as the vouchers are reimbursed - but in reality you need someone co-ordinating the orders, get the

orders delivery, monitor the paperwork and uptake, plus a budget to purchase the vitamins in the first place.

Make it easier for the places that families go to obtain them for exchange. Currently GP's, children's centres, pharmacies etc. cannot order them so it's a logistical nightmare to supply them. All outlets receiving food vouchers should also exchange vitamin coupons (job done!)

Free to all women and children and available at all health visitor led baby clinics and via midwife to all pregnant mums.

If all women were given Healthy Start vitamins in pregnancy according to NICE guidelines, the expectation of vitamin use would be well established by the time the baby was born, making infant supplementation more likely.

In our PCT, we fund Healthy Start vitamins for ALL pregnant women, postnatal women up to one year and all breastfeeding women and ALL children under five years - regardless of whether they qualify for Healthy Start or not. We distribute our vitamins through all health visiting teams and all 29 children's centres and this has significantly increased our uptake.

In Westminster we have recently introduced the vitamins into our 12 children's centres. They are available for sale as well as voucher exchange. Uptake is highest when Health Visitors at clinics on site recommend them to parents and they are able to go out to reception and purchase them (this is also the case in our five health centres too). This highlights the importance of putting them in venues where families or pregnant women already are - to make life easier.

All children's centres within North East Derbyshire not only hold vitamins to exchange with the vouchers but sell the vitamins at cost price to increase uptake of the vitamins. Outreach staff can also take vitamins to families' homes and exchange them for vouchers at their home. Schools in isolated communities also take orders for the vitamins and pass them on to the children's centre so families who do want vitamins can access them.

Participatory workshops with beneficiaries

There was a lack of awareness among women both of the benefits of taking vitamin supplements or giving them to children and of the entitlement to free vitamin supplements as part of Healthy Start. Many women did not realise that a coupon for Healthy Start vitamins was included with the food vouchers. There was some confusion over the expiry date of the vitamin coupons; some women assumed that the date of the letter was the expiry date of the coupon and that they could not claim their vitamin supplements once the coupon had expired. Women often did not know where to get Healthy Start vitamins and some assumed they could take the coupons to a pharmacy and use them to buy branded vitamin supplements. During workshops, some women asked for details of where they could collect their Healthy Start vitamin supplements. Women thought that vitamin supplements should be more widely available including at the shops where they used their vouchers or that they should be posted with the vouchers. Uptake of Healthy Start vitamins was less likely to occur if mothers had to make a special trip to collect them.

Not sure where to get the vitamins – I took them (coupons) to Asda and they didn't know what I was talking about (York participant)

I didn't like the vitamins because the midwife didn't know where I could get them
(Calderdale participant)

Focus group discussions with women did not speak English

Not many women were taking or giving vitamin supplements to their children and most were not aware that they were part of the Healthy Start scheme. Of those who did know vitamin supplements were available, most did not know where they could get them and asked for this information during the focus groups. Several women did know where to get Healthy Start vitamins, but said it was too far away. When asked about the benefits of vitamins for pregnant women and new mothers, most talked about the need for iron and calcium. Most women were broadly aware that vitamins are good for the health of mothers and children, especially children who don't eat well or don't drink milk and anyone who is not getting their five-a-day. The Somali-speaking women appeared to be aware of vitamin D deficiency but many thought dairy products were a good source of vitamin D.

I got them (vitamins) from the health visitor centre (health centre). It was easy to get them because that is where you go to weigh your baby (Ealing focus group - Somali).

I knew I was entitled to them (vitamins) but where do you go to get them? If it's a bit too far and you've got little children you know. It would be easier if they just let them go and get them from your doctors or something (Leeds focus group - Sylheti).

Having a baby is not an easy task – you lose your energy, you lose your iron and calcium so to recover that you need your vitamins and then after you have your baby you are tired all the time because it's a new birth and the vitamins help you get your energy (Bradford focus group - Urdu).

Telephone interviews with women from Traveller communities

None of the women were taking vitamin supplements. Two women said they had tried the vitamin supplements; one said they tasted unpleasant and the other stopped taking them because they did not make her feel any better.

Draft recommendations for cross-sectoral workshops

- Develop distribution mechanisms that do not require women to make a separate trip to collect vitamin supplements
- Increase awareness among women and families of benefits of vitamins
- Increase awareness among practitioners of benefits of vitamins especially GPs
- If continuing with coupons for Healthy Start vitamins, ensure they are easily identifiable, remove expiry dates
- Remove vitamin supplements from the Healthy Start scheme and provide them free universally to pregnant, postnatal and breastfeeding women and children up to their fifth birthday
- Sort out distribution and supply chain to sustain continuous stock of in-date vitamin supplements
- Give/sell/prescribe Healthy Start vitamins to pregnant/pre-conceptual women at the earliest opportunity without waiting for eligibility for Healthy Start to be confirmed.
- Develop schemes to make Healthy Start vitamins for women and children available for purchase for those not-eligible for Healthy Start.
- In light of the forthcoming SACN review (due in autumn 2014), review the dose of vitamin D for women and children and the recommended starting age for the children's vitamins.

- Clarify all benefits and risks of Healthy Start vitamins being distributed to all pregnant women

5.2.8 Theme 8: Healthy Start and infant feeding

Practitioner focus groups

Infant feeding was not a major theme in the focus groups. Most practitioners felt that they were promoting breastfeeding to all women and this was not seen specifically as part of the Healthy Start scheme. With regard to formula feeding, none of the participants were aware of the proportion of Healthy Start vouchers that were being spent on infant formula; however there was a perception that it was high. There was disagreement between participants who felt that allowing vouchers to be used for infant formula incentivised women to formula feed their infants and those who felt that women should have access to resources to feed their infants regardless of their infant feeding decisions. Some of the latter group felt the value of the vouchers should cover the entire cost of infant formula. In three groups comparisons were made with the previous Welfare Food scheme. Most thought Healthy Start was an improvement. However it was reported that in some population groups, Healthy Start was viewed as a new 'milk token' scheme. There was strong feeling among some participants that the differential guidance for when to start vitamin supplements for breastfed compared to formula fed infants undermined breastfeeding.

If formula feeding, that is what they will use them (vouchers) for. So they will not have the benefit of fruit and veg. This is a big flaw (Calderdale).

It is not right that the vouchers can be used for formula: it is an incentive to bottle feed (Westminster).

We are not health police and if mothers decide to formula feed that is their choice and they should have access to resources to feed their babies (Westminster).

We know Healthy Start is broader than the Welfare Food scheme but to a lot of clients it is a means to getting baby milk (infant formula). There is strong culture in the area of you are having a baby; you are entitled to your baby milk (N. E. Lincs.)

National electronic consultation

The only question in the electronic consultation concerning infant feeding asked respondents to compare Healthy Start with the previous Welfare Food scheme.

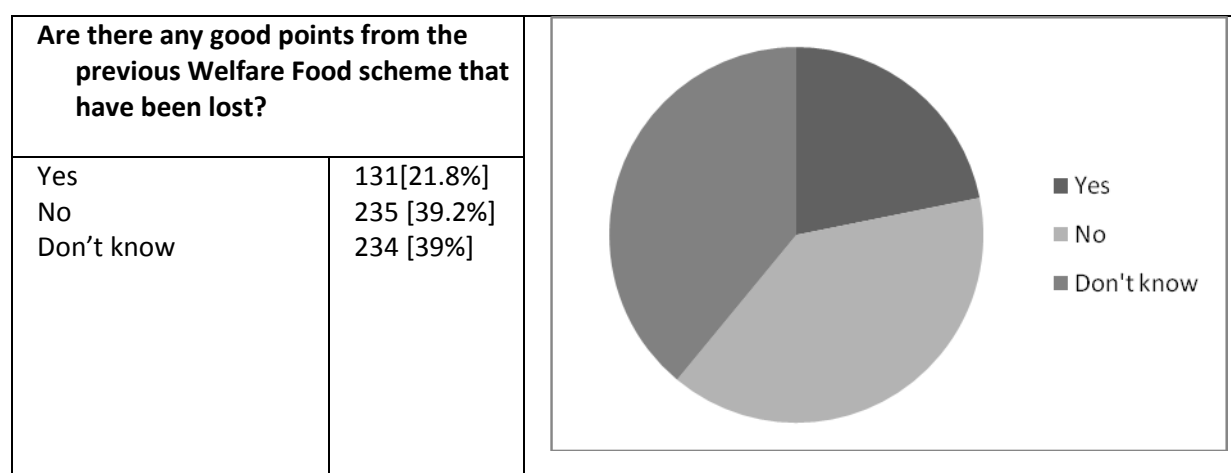


Figure 13: National electronic consultation responses – comparing Healthy Start with the previous Welfare Food scheme

Just over a fifth of respondents thought that some good points from the previous scheme had been lost. These included free plain cows' milk for pregnant and breastfeeding women, face-to-face contact with health professionals and distribution of vitamin supplements when women visited child health clinics for their free infant formula, and the scheme covering all the cost of infant formula for low-income women. Some respondents expressed strong opinions about the need to remove infant formula from the Healthy Start scheme whereas others felt this might pressurise families to use unsafe practices such as over-diluting and re-heating formula or using cows' milk during the infant's first year.

It brought women into clinics where they has access to a health professional and vitamins could be purchased very cheaply for those not on the scheme.

When the last money in the house could be used on heating or formula, the provision of free formula ensured that baby's feeds are NEVER compromised by inferior products.

There may be some mileage in pursuing free cows' milk for pregnant women, but I think it would be an enormous and negative step back to provide free infant formula and would certainly undermine breastfeeding and reduce our already low breastfeeding rates.

Participatory workshops

For mothers who decide to formula feed their babies, dietary behaviour change was not strongly established or reinforced during the baby's first year as all the voucher value was used on buying infant formula and not on fruit and vegetables. Many women who had chosen to formula feed said that Healthy Start was not a factor in their decisions, which were primarily influenced by family, friends, health beliefs and practical considerations. Healthy Start vouchers enabled them to afford to feed their babies in the way they had chosen. Some mothers said that they changed from breastfeeding to infant formula sooner than they would have done without support from Healthy Start. Some women indicated that the availability of infant formula through the Healthy Start scheme made the decision to formula feed appear more acceptable.

Some women felt that the value of the vouchers should cover the whole cost of infant formula. A small number said that the vouchers were used to build up a reserve of formula whilst they were pregnant. Support with buying formula made it easier for some young mothers to continue in education even if they knew the benefits of breastfeeding. There was evidence of misunderstandings about breastfeeding. For example many women said they could not breastfeed, or that they were told by health professionals that to breastfeed, they needed to eat four meals a day and/or drink a pint of milk a day.

Having vouchers for formula doesn't influence the decision to not breastfeed but if it's not going well it means that having a way to help with the cost of formula takes away the worry about how to feed your baby (Calderdale participant)

Trade off- formula costs more now but allows me to go to school, get better qualifications and hopefully a better job in the future. Breastfeeding is cheaper and better but I can't continue school and so will get a less well-paid job in the future. It costs you more in the long run (Southwark participant)

I will be able to build up a stock of formula before my baby is born. I already know I won't breastfeed. Vouchers will help me to be prepared so I don't have to buy it at the last minute (Sheffield participant)

While I was breastfeeding I could eat healthy fruit and vegetables and I drank a lot of milk (Camden participant)

The need for mothers to eat well and have four meals a day is not possible so mothers think they shouldn't breastfeed (Leeds participant)

If you are formula feeding the vouchers don't go far at all (York participant)

Focus group discussions with women who did not speak English

Women who breastfed said they used their vouchers to purchase fruit and vegetables for themselves. If the baby was formula fed then all the vouchers were needed to buy formula. For some women, the increase in the value of vouchers for the child's first year reinforced the notion that vouchers were intended to be used for infant formula. Women gave many reasons why they might want to but not be able to breastfeed and some who breastfed also said they gave formula 'top ups'.

0-1 they need the powder milk and at 1 they can drink fresh milk again

If they are providing us with £3.10 or £6 something - Cow and Gate costs £8 a tin which lasts one week so introducing something to help us saying that there is too small intake of fruits and vegetables - with what are we going to buy the fruit and veg?

That's because the baby doesn't eat much fruit and veg. in 1st year you see (Extract from Leeds focus group - Sylheti)

Telephone interviews with women from Traveller communities

All three women said they had always intended to formula feed and Healthy Start vouchers did not influence that decision.

Draft recommendations for cross-sectoral workshops

- There needs to be a discussion regarding the implications of retaining or removing infant formula from Healthy Start for the health and nutrition of infants and children in low-income groups
- Any increase in voucher value must be for both formula feeding and breastfeeding families.
- Information about breastfeeding for parents should avoid giving the impression that women can only breastfeed if they have a healthy diet as this can be misinterpreted and felt to be unrealistic for many low-income families.
- Consideration of including added incentives for breastfeeding mothers
- Differential guidelines regarding the use of vitamin supplements for infants who are breastfed and those who are formula need to be framed in such way that breastmilk is seen as the norm and not deficient

5.2.9 Theme 9: Information and training for health care professionals

Practitioner focus groups

As highlighted above there were some notable gaps in many frontline practitioners' knowledge about the content of the Healthy Start scheme. Very few practitioners had opportunities for training and updating in relation to the scheme. Many participants were aware that the Healthy Start website was a good source of information but most felt they did not have time to access it. Very few practitioners were aware of the Healthy Start e-learning module. In one locality the public health lead for the scheme was proactive through making six-monthly visits to health centres to update staff and providing articles in a newsletter three times per year. Participants were concerned that the loss of the regional Healthy Start leads had removed an invaluable source of information.

From results of a health practitioner survey it was surprising how little knowledge of the scheme - not so much from health visitors and midwives but especially GPs – many had never heard of it (Tower Hamlets).

Do you use the Healthy Start website? I'm not at a desk long enough! I rely on updates. We are desperately short-staffed – no time – unless something has happened and I need to access that site for some reason then I am not going to. Too many other things that are more important, life-threatening and urgent (Ealing).

Information needs to be on the website – uptake rates etc.–there is nothing to say what projects are in place, uptake across country – data has to be requested from DH – it is only published by PCTs every 6 months and we need it quarterly. Information came via the regional leads but they are going with the Strategic Health Authorities (N.E. Lincs.).

National electronic consultation

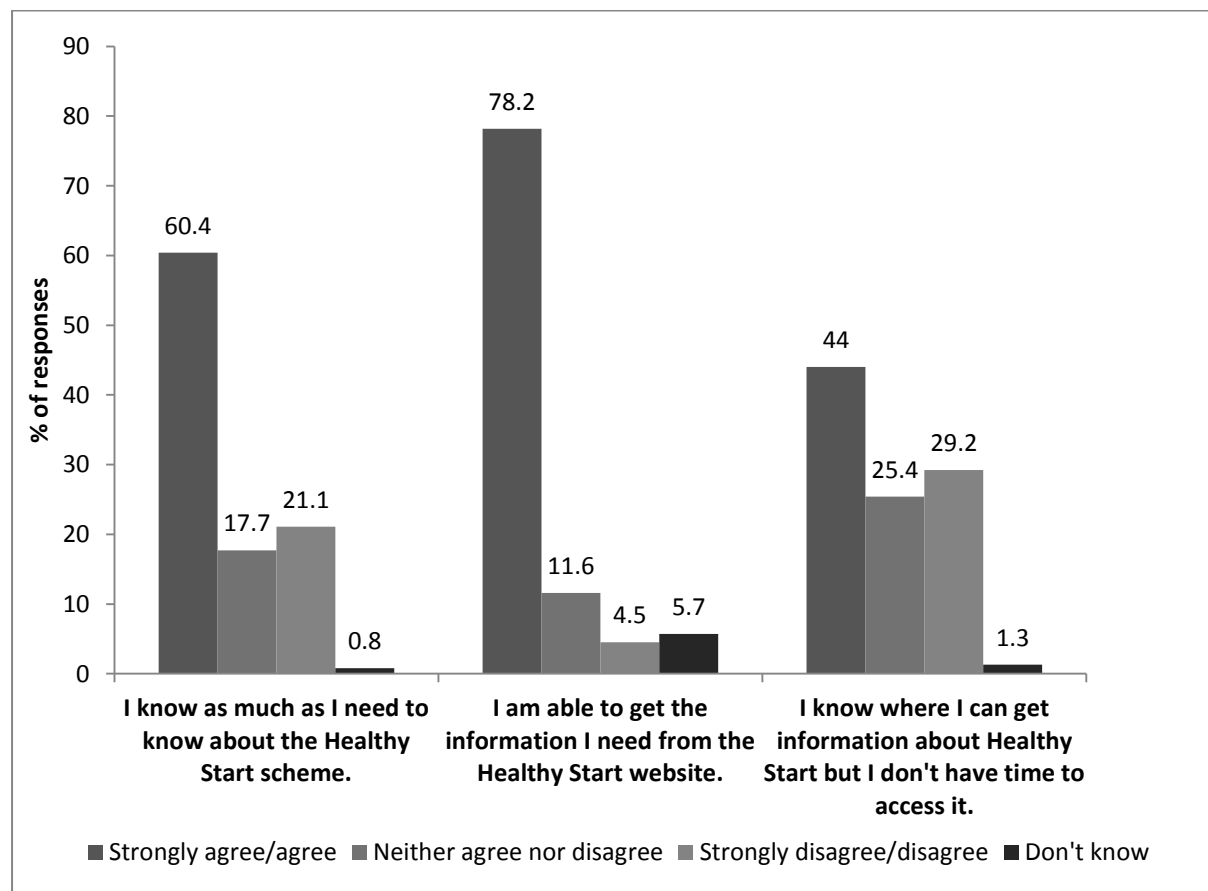


Figure 14: National electronic consultation responses – practitioner access to information about Healthy Start

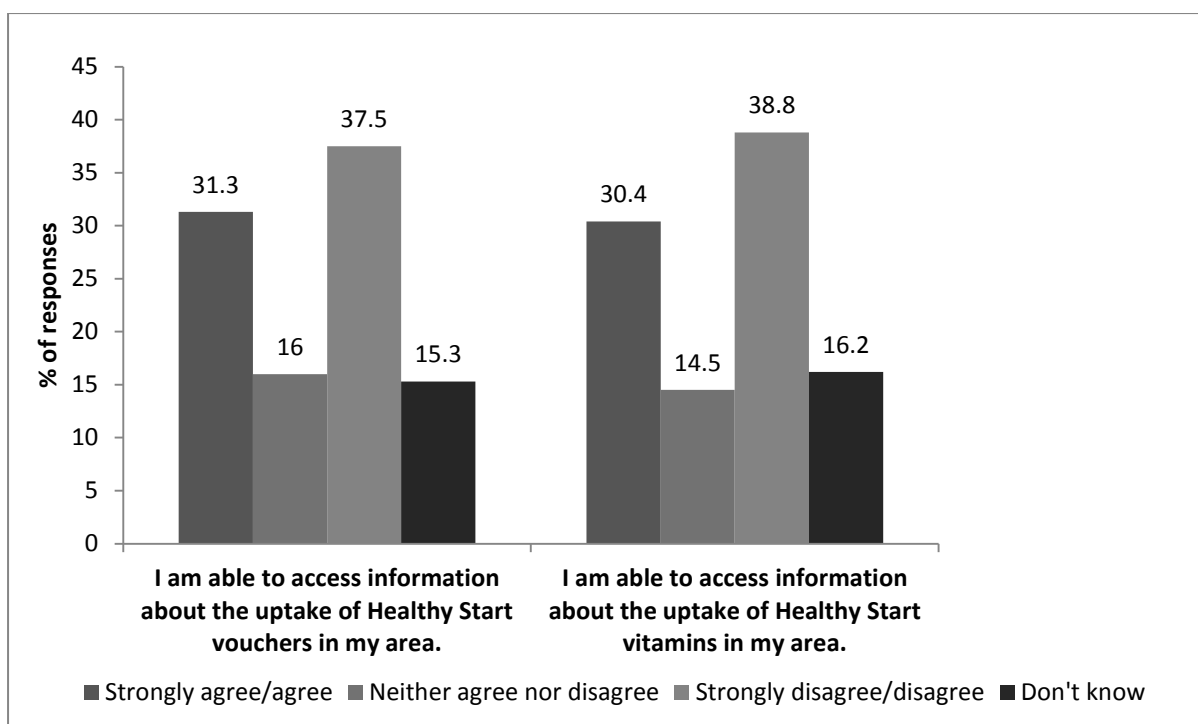


Figure 15: National electronic consultation responses – practitioner access to information about local uptake of Healthy Start

Almost two thirds of respondents felt that they had sufficient information about Healthy Start and nearly all said they could find information on the Healthy Start website. Less than a quarter of respondents said that had undertaken training for their role in Healthy Start and a similar proportion said they would like training. Only 8% had undertaken the e-learning course and 78% were not aware of its existence.

Table 14: National electronic consultation responses – practitioner training

Have you had training to perform your role in regard to Healthy Start?	
Yes, I have had training	106 [17.5%]
Yes, I have had training and I would like further training	33 [5.5%]
No, I have not had training	276 [45.7%]
No, I have not had training and I would like training	139 [23%]
Other	50 [8.3%]

Table 15: National electronic consultation responses – practitioner awareness of Healthy Start e-learning CPD course

Have you undertaken the Healthy Start e-learning CPD course?	
Yes	48 [8%]
No, I am aware of the course but have not undertaken it	63 [10.5%]
No, I was not aware of the e-learning course	448 [74.5%]
No, course not relevant to me as I am not a Health Professional	21 [3.5%]
Other	21 [3.5%]

The main barriers to accessing information and training were said to be time and workload and the low priority given to Healthy Start as compared to antenatal screening for midwives and safeguarding for health visitors. Some respondents also stated that it was difficult to access local data about eligibility, uptake and use of vouchers which could improve understanding of local factors. Suggested strategies included embedding training about Healthy Start in breastfeeding and healthy weight policies, developing training packages to be delivered by trainers or requiring staff to undertake online training. Several respondents suggested that local leadership was crucial:

Local leadership is the key and that has been dismantled e.g. regional infant feeding co-ordinators and Healthy Start leads were the links between DH and practitioners and that has gone.

An example of good practice was:

We have a short training package that is easily delivered in team meetings and to new staff. This training is being cascaded throughout the children's centres (all staff including reception staff) and delivered in health visiting team meetings across the county.

Participatory workshops

Women felt that there was patchy promotion of the scheme by health professionals with no automatic inquiry about possible eligibility. This meant some mothers may slip through the net, particularly if there were language issues. It was also suggested that there was a lack of coherent understanding by health professionals about the eligibility criteria.

Draft recommendations for cross-sectoral workshops

- Identify local leadership/Healthy Start champions to cascade information and training to all staff e.g. Infant feeding leads
- Use a range of formats and opportunities for updating e.g. meetings, training days, newsletters, IT – text-messaging and hand-held devices
- Raise awareness of DH website and e-learning CPD course and include in Key Performance Indicators/Quality Outcomes Framework

- Develop multi-sector/multi-professional approaches linked to other high profile policies e.g. healthy weight and Breastfeeding Friendly Initiative.

5.3 Key informant user panel

A user panel of key informants was established in Leeds by two collaborators, one a service user representative (RM) and a midwife working with vulnerable women (SB). The aim was to convene a panel of four to six women. Six women from an initial group of eight (two women attended the first meeting only) were recruited (see Appendix 28 for information leaflet given to potential recruits) to represent women of different ages, backgrounds, and stages in the Healthy Start cycle (from a pregnant woman who had just applied to a woman who had just ceased receiving vouchers for her four-year-old child). Five out of the six women did not have English as their first language. The panel met four times: in January 2011, May 2011, September 2011 and March 2012 to give a more in-depth view of the issues, to advise on methods, analysis and dissemination and to reflect on the findings of the study. The meetings took place in a children's centre that was familiar to most of the women. As well as discussing their own experiences of the Healthy Start scheme, the panel contributed to the design and content of Participant Information Sheets and topic guides for the participatory workshops and the focus groups with women who did not speak English. The women were paid £10 for each meeting they attended.

5.3.1 *Contribution of the key informant user panel to the study.*

Eight women attended the first meeting of the key informant user panel. Five women were receiving Healthy Start vouchers for at least one child, one woman had made an application two weeks previously, one was pregnant and about to apply (but had previously received Healthy Start vouchers for two older children) and one woman had just stopped receiving vouchers because her child was four years old. Following introductions, the women described their experiences of Healthy Start. Most were positive about the scheme feeling that it made a difference financially and increased intake of healthy foods. While three women had not experienced problems with their applications, others expressed opinions that the application process was too complicated and that the information on the website regarding eligibility was unclear. It had taken six months and three application forms before one woman received the vouchers. The women had various experiences of trying to use the vouchers in smaller shops but reported that all large supermarkets accepted them. They reported anecdotes of other people exchanging vouchers (for cash for less than their value) or of women selling surplus vouchers that they could not use before expiry. Not all women were aware that they were entitled to free vitamin supplements or where they could collect them. The user panel was consulted regarding whether the research team should include men in the study. All thought that it would be difficult to engage men in the evaluation because they were unlikely to be interested or because there are many single mothers. This information from the user panel was used to inform the topic guide for the practitioner focus group discussions.

A second meeting was held in May 2011 and three women attended. At this meeting the panel was updated on the study progress and was asked to review draft Participant Information Sheets for the workshops and focus groups with women who did not speak English. The panel was also consulted on issues relating to the ethics application e.g. whether workshop participants were likely to find any topics sensitive or embarrassing. The panel was also asked for their ideas of how to recruit women to the study. The discussions were helpful in completing the ethics application form.

The third meeting was held in September 2011 which four women attended. At the meeting the panel discussed some of the key findings from the practitioner focus groups and were consulted on the proposed topics for the participatory workshops and focus groups with women. The panel suggested that all the questions were acceptable and through their discussion of some of these

questions, provided examples of some of the substantive issues likely to emerge from the workshops and focus groups with women.

Four women attended the final meeting of the user panel held in March 2012. At this meeting the women were asked for their views on the draft recommendations to be presented at the cross-sectoral workshops and to reflect on their experiences of participating in the user panel. The user panel supported most of the recommendations, adding their views as follows:

Increasing awareness of the scheme

The user panel felt that increasing awareness of the scheme would not be needed if there was a joined-up system between welfare benefits and health system. Registration for Healthy Start could be linked to the maternity grant or child benefit application. It was also suggested that putting information about Healthy Start in the Bounty bag that is provided at the first scan would be a good opportunity to increase awareness.

Providing health and lifestyle information

Food and nutrition advice was suggested to be challenging and contentious because it was often not culturally appropriate i.e. it was frequently based on a restricted range of foods and did not reflect the diversity of foods and eating patterns of multi-ethnic communities. It was also felt that women from some backgrounds do not access healthcare early in their pregnancies and that for those who do, it is difficult for midwives to give all the necessary information at the booking visit.

Eligibility

The user panel felt that eligibility should be extended until the child's fifth birthday. They felt eligibility needed to be clarified for women who have refugee status. The panel also suggested there should be an appeals process for those who believe they meet the criteria if applications are declined.

Applying for Healthy Start

There was a strong feeling that healthcare professionals should advocate for women by following up claims by telephone on the woman's behalf. Currently women have to use a premium rate telephone number when calling from a mobile phone. The user panel supported the recommendation to extend the list of practitioners who can sign the application form in particular to children's centre managers who would also be able to help with appeals as suggested above.

Using Healthy Start vouchers

The panel thought that changing to a swipe card system was a good idea because it would avoid the loss of money if vouchers are not spent to their full value and avoid the inconsistent rules applied by some supermarkets e.g. that only two vouchers can be used in any one transaction. The vouchers were said to be too large to fit in a purse and were easily torn. The user panel felt that the expiry date of vouchers should be extended as some families have difficulty spending all their vouchers in time. Extending outlets where vouchers can be used to market stalls was said to be particularly important for those from diverse ethnic backgrounds. Finally the panel supported the recommendation that the value of vouchers should keep pace with the rising cost of food.

Healthy Start vitamin supplements

The user panel supported the recommendation to make the vitamin supplements universally available either free or at low cost but said this had to be accompanied by information to motivate their use by women and children. They felt that health professionals require more information about the need for vitamin supplements.

Healthy Start and infant feeding

While the user panel endorsed the need for the Healthy Start scheme to convey a strong message about breastfeeding, they were adamant that infant formula should be retained in the scheme. This was because those who are formula feeding need the resources to be able to buy sufficient formula and that minimising the risks of formula feeding must be of paramount importance. Women who are advised to formula feed because they are HIV positive were highlighted as a group who would be disadvantaged by the removal of infant formula.

5.3.2 Participants' reflections on participating in the key informant user panel

The participants were generally very positive about their experiences of being part of the user panel. They said they had found it interesting, it was valuable to provide their input and they hoped that their contribution would help other women. They themselves had learned more about Healthy Start through participating. They appreciated the flexibility of the meetings so that they could bring their children with them. One user thought the experience had been repetitive and that three rather than four meetings would have been sufficient. All the women felt the provision of a certificate verifying their contributions was important as they could add it to their CVs and might increase their chances of getting a job. Finally, if the opportunity arose they all said they would do it again to make more friends.

CHAPTER 6: CROSS-SECTORAL WORKSHOPS TO ENGAGE STAKEHOLDERS IN DEVELOPING RECOMMENDATIONS

In this chapter we describe how participants at two cross-sectoral workshops worked on the list of 62 recommendations derived from the previous components of the study to identify seven priority recommendations.

6.1 Recommendations taken forward to cross-sectoral workshops

The findings from the practitioner focus groups, national electronic consultation, participatory workshops, focus group discussions with women who did not speak English and the telephone interviews with women from Traveller communities, the review of economic literature and the views of the key informant user panel were synthesised and summarised by the research team. Based on this synthesis and the expert opinion of the research team and Project Advisory Group, a list of 62 draft recommendations that covered the nine themes represented in the findings was drawn up. The source of each recommendation (i.e. which component(s) of the study it derived from) was documented to provide an audit trail and is presented in Table 14 below. These 62 recommendations formed the basis of the cross-sectoral workshops as described below.

Table 16: Recommendations arising from findings and taken forward to cross-sectoral workshops

Recommendation	Source
General benefits and importance of Healthy Start	
Maintain the Healthy Start scheme as a means of promoting healthy eating choices for families on low income	Practitioner focus groups National electronic consultation, Participatory workshops Focus group discussions with women Telephone interviews Key informant user panel
Evaluate the costs and effectiveness of the Healthy Start scheme	Research team and Project Advisory Group
Evaluate the impact of vouchers on demand for Healthy Start-related products. The evaluation could consider the impact of alternative voucher values and eligibility criteria	
Information provision and awareness of Healthy Start	
Increase awareness of the target population of the Healthy Start scheme and what it is trying to achieve e.g. through local and national media campaigns	Practitioner focus groups National electronic consultation, Participatory workshops Focus group discussions with women Telephone interviews
Include Healthy Start in routine communications relating to qualifying benefits and tax credits	
Embed provision of information about Healthy Start in antenatal, postnatal and child health pathways and guidelines e.g. through routine enquiry about possible eligibility and provision of information and audit compliance	
Ensure adequate supply of information in a variety of accessible formats including relevant languages	Practitioner focus groups, National electronic consultation Key informant user panel
Include all of the early years workforce from all sectors in promoting Healthy Start to families and providing health related information	
Consider the incoming changes to commissioning in the recommendations which will bring even more diversity to local commissioning arrangements	Research team and Project Advisory Group

Recommendation	Source
General benefits and importance of Healthy Start	
Opportunity for providing health-related and lifestyle information	
Develop an overarching strategy to encourage 'vulnerable' pregnant women to make early contact with health services	Practitioner focus groups National electronic consultation
Use contemporary methods of making contact with women e.g. text messaging, websites, drop-in centres	Practitioner focus groups National electronic consultation, Participatory workshops Focus group discussions with women Telephone interviews
Map and evaluate good practice initiatives and embed in routine practice	National electronic consultation
Eligibility	
Streamline eligibility criteria and widen access to make more women eligible	Practitioner focus groups National electronic consultation, Participatory workshops Focus group discussions with women Telephone interviews Key informant user panel
Take Healthy Start vitamin supplements out of the eligibility criteria	
Provide education and training of practitioners who encounter pregnant women and young families about their role regarding Healthy Start so that they do not see themselves as 'gatekeepers'	
Embed information and means of keeping up to date regarding welfare benefits for pregnant women and young families in the initial and ongoing education and training of health and social care practitioners.	
Consider how to target families whose circumstances change	
Extend the scheme to the child's fifth birthday	
Develop tools to help women and practitioners to identify who is eligible	National electronic consultation
Develop plans for communicating changes to eligibility criteria resulting from incoming changes to the welfare system	Research team
Applying for Healthy Start	
Provide consistent and proactive support for women to complete application forms	Practitioner focus groups National electronic consultation, Participatory workshops Focus group discussions with women Telephone interviews Key informant user panel
Streamline the application process e.g. link it to other benefits and avoid the need for multiple applications	
Provide alternative to posting application forms e.g. telephone, online options	
Provide forms in different languages and formats	
Speed up the process of authorising claims and issuing vouchers and inform applicants that if they do not hear within x days/weeks, they should follow it up	
Provide a simplified free phone helpline with different language options for applicants to follow-up claims	
Extend the categories of practitioners who can sign the form/remove the requirement for a signature as this does not appear to be achieving the aim of providing health related information	
Make the Healthy Start scheme more sensitive to changing financial circumstances e.g. seasonal work, self-employment	
Streamline timing of application with routine antenatal visit schedule so that application forms are signed as early as possible and women do not have to make extra visits	Practitioner focus groups National electronic consultation
Using Healthy Start Vouchers	
Increase value of vouchers in line with rises in food prices	Practitioner focus groups National electronic consultation,
Promotion of Healthy Start should include clear messages about the goods which can be bought with Healthy Start vouchers including recent update to include frozen	

Recommendation	Source
General benefits and importance of Healthy Start	
fruit and vegetables	Participatory workshops Focus group discussions with women Telephone interviews Key informant user panel
Health promotion needs to address misunderstandings about what constitutes healthy fruit and vegetables that can contribute to the five-a-day	
Promote Healthy Start to small retailers, market stalls, community food projects and value supermarkets to increase outlets and options for women.	
Ensure that retailers registered for the scheme clearly indicate this and that local lists of registered retailers are easily available for beneficiaries and practitioners	
Work with retailers to ensure the system for registration for Healthy Start and redeeming the value of vouchers is as simple as possible	
Improve monitoring of the scheme to eliminate as far as possible the use of vouchers for non-allowable goods	
Work with retailers to ensure consistency in how vouchers can be used (e.g. how many can be accepted in one transaction and for what goods) and to eradicate negative attitudes from retail staff	Participatory workshops Focus group discussions with women Key informant user panel
Provide vouchers in smaller denominations, sized to fit in a purse or consider adopting a swipe card system	
Ensure the information on healthy eating and suggested recipes sent to beneficiaries meet the needs of women from diverse populations and backgrounds.	
Evaluate the potential of the Infant Feeding Survey (when it becomes available) for further understanding of voucher use and demand for Healthy Start products	Research team, Project Advisory Group
Investigate variation of voucher use through linking DH datasets with nationally held data	
Investigate the potential use of the Infant Feeding Survey to understanding the impact of vouchers on demand for Healthy Start related products	
Vitamins	
Develop distribution mechanisms that do not require women to make a separate trip to collect them	Practitioner focus groups National electronic consultation, Participatory workshops Focus group discussions with women Telephone interviews Key informant user panel
Increase awareness among women and families of benefits of vitamins	
Increase awareness among practitioners of benefits of vitamins especially GPs	
If continuing with coupons for Healthy Start vitamins, ensure they are easily identifiable, remove expiry dates	
Remove vitamin supplements from Healthy Start scheme and provide them free universally to pregnant, postnatal and breastfeeding women and children up to fifth birthday	Practitioner focus groups, National electronic consultation Key informant user panel
Sort out distribution and supply chain to sustain continuous stock of in-date vitamin supplements	
Give/sell/prescribe Healthy Start vitamins to pregnant/pre-conceptual women at the earliest opportunity without waiting for eligibility for Healthy Start to be confirmed	
Develop schemes to make Healthy Start vitamins for women and children available for purchase for those not-eligible for Healthy Start	
In light of the forthcoming SACN review (due in autumn 2014), review the dose of vitamin D for women and children and the recommended starting age for the children’s vitamins	Practitioner focus groups
Clarify all benefits and risks of Healthy Start vitamins being distributed to all pregnant women	National electronic consultation
Improve quality of vitamins claims database	Research team
Healthy Start and infant feeding	
There needs to be a discussion regarding the implications of retaining or removing infant formula from Healthy Start for the health and nutrition of infants and children	Practitioner focus groups National electronic

Recommendation	Source
General benefits and importance of Healthy Start	
in low-income groups	consultation, Participatory workshops Focus group discussions with women Telephone interviews Key informant user panel
Any increase in voucher value must be for both formula feeding and breastfeeding families.	Participatory workshops Focus group discussions with women Telephone interviews
Information about breastfeeding for parents should avoid giving the impression that women can only breastfeed if they have a healthy diet as this can be misinterpreted and felt to be unrealistic for many low-income families.	
Consideration of including added incentives for breastfeeding mothers	Practitioner focus groups National electronic consultation
Differential guidelines regarding the use of vitamin supplements for infants who are breastfed and those who are formula need to be framed in such way that breastmilk is seen as the norm and not deficient	
Education and training	
Identify local leadership/Healthy Start champions to cascade information and training to all staff e.g. Infant feeding leads	Practitioner focus groups, National electronic consultation
Use a range of formats and opportunities for updating e.g. meetings, training days, newsletters, IT – text-messaging and hand held devices	
Raise awareness of DH website and e-learning CPD course Include in Key Performance Indicators/Quality Outcomes Framework	
Develop multi-sector/multi-professional approaches linked to other high profile policies e.g. healthy weight and Breastfeeding Friendly Initiative	

6.2 Cross-sectoral workshops

6.2.1 Aims

The aims of the cross-sectoral workshops were to discuss, distil, ratify and prioritise the recommendations developed from the previous stages of the evaluation; to add context and explanation to ensure a real life view of the operation of the Healthy Start scheme, and to suggest positive strategies for implementation. An important element of the workshops was to bring policy expertise to bear from local, regional and national (England) levels to ensure that the recommendations were as informed and appropriate as possible.

6.2.2 Recruitment

Two one-day cross-sectoral workshops were convened, one in Leeds on 26th April 2012 and one in London on 1st May 2012. The aim was to include approximately 30 participants in each workshop ranging from very senior to junior and from all relevant sectors to include a broad range of health and social care practitioners, policy-makers, commissioners, voluntary and independent sectors including those from areas where the scheme was working well (see Appendix 29 for a list of proposed attendees). Those who had been involved in the earlier stages of the evaluation as participants in the practitioner focus groups or those who had helped with the organisation of the participatory workshops and focus groups discussions for women, were invited. Participants from all English regions were also invited, although most who attended came from the two regions where the workshops were held.

6.2.3 Process

Both workshops were facilitated by an independent consultant who managed the process, encouraged participation and kept all activities to the allotted time-scale. Following a presentation of the background, methods and key findings of the previous components of the evaluation, workshop participants worked in small groups, each covering several themes to: a) discuss who participants thought should be responsible for implementing each recommendation and the potential importance of each recommendation; b) provide two group scores (0-10 where 10 was most important/feasible) for each recommendation, one for importance and one for feasibility, and c) discuss barriers to and strategies for implementation. The groups were invited to modify, combine and add new recommendations as they thought relevant. Each group had a facilitator and a scribe who noted the key points of the discussions and recorded the scores. Finally, each group was asked to prioritise the top two to five overall recommendations (based on all the themes) according to their importance. A plenary session at each workshop reached final agreement from all participants as to the top priority recommendations.

Materials from the workshops, which comprised facilitator notes, flipcharts of discussions of barriers, strategies and priority recommendations along with completed tables of scores for importance and feasibility, were synthesised and summarised. The scores for each recommendation by different groups across both workshops were combined. Each recommendation was rated for importance and feasibility based on mean scores as being *high* (mean score ≥ 9), *medium* (mean score 6 - <9), or *low* (mean score <6). The synthesis of all material from the workshops formed the basis of the final recommendations presented in this report.

6.2.4 Participants

A summary of the roles of the 56 participants who attended the two cross-sectoral workshops is provided below. As well as London and Yorkshire and the Humber where the workshops were held, participants represented the following English regions: North West, North East, East Midlands, East of England, South Central and South East. Only the West Midlands and South West of England were not represented by at least one participant. There were more requests for places at the workshops than it was possible to accommodate and the research team was contacted by several senior public health personnel following the workshops expressing an interest in the findings.

Table 17: Summary of participants at the cross-sectoral workshops

Role	Workshop 1	Workshop 2
Public Health Specialist	10	12
Health promotion specialist	1	
Infant Feeding Specialist		6
Midwife	5	5
Health Visitor	2	
Dietician	1	
Service manager	2	
National policymaker		3
Paediatrician		1
Administrator		1
Voluntary sector		3
Family support worker		1
Other		3
Total	21	35

As can be seen from Table 15, in both cross-sectoral workshops the largest group of attendees was public health specialists who, between them, were responsible for commissioning, implementing and monitoring the Healthy Start scheme within their localities. That so many busy senior public health personnel gave up their time to come to the workshops and that some were prepared to travel long distances without re-imbursement is testament to how important they felt Healthy Start is and appeared to reflect an enthusiasm for improving its implementation. There was low attendance from those in more junior roles such as support workers, early year's practitioners and administrators, whose views were important to the evaluation. This probably reflects the fact that it is more difficult for people in such roles to be able to re-arrange their daily workload to attend such an event. It is also disappointing that only two health visitors were able to attend (as they are a key professional group involved in implementing Healthy Start), and that there was low representation from children's centre staff. In both cases the few who had accepted the invitation to attend either sent apologies or did not attend. In addition to the participants identified above, each workshop was attended by members of the research team and two members of the Project Advisory Group attended workshop two.

6.2.5 Priority recommendations

As described above, during the cross-sectoral workshops, participants worked in small groups which between them discussed the 62 recommendations arising from the previous components of the evaluation within the nine identified themes. Each recommendation was scored for importance and feasibility. Through this process the 62 recommendations were distilled to seven overarching priority recommendations that between them incorporated all the recommendations that were felt to be important. In this section we present the findings of the workshops according to these seven overarching priority recommendations. There was substantial consensus both within and across the two cross-sectoral workshops about these recommendations. The evidence for these seven priority recommendations can be tracked through the data presented in Table 14 and Appendix 30 which contains details of all the ratings for importance and feasibility.

It was evident from discussions that workshop participants were mindful of the current economic climate and proposed welfare changes, and the uncertainty surrounding proposed changes to NHS structures and public health commissioning arrangements. This resulted in participants recognising that any increased cost implications of recommendations would need to be justified and led to a cautious approach to scoring the feasibility of recommendations. Most participants were unambiguous that, in a different economic and health service environment, they would have been arguing for widening the eligibility criteria to reach more families and increasing the value of the vouchers.

1: Maintain and develop the Healthy Start voucher scheme

Recommended action for: DH, DWP, NHS Commissioning Board and Clinical Commissioning Groups

Maintaining and developing the Healthy Start voucher scheme in the context of proposed changes to welfare benefits was considered to be of *high* importance and *high* feasibility.

Participants felt strongly that Healthy Start was an important scheme that contributed to the health of mothers and children. It was recognised that it was even more important to ensure that the Healthy Start scheme makes a difference to low-income families in the face of the current economic climate and proposed changes to benefits and in the context of fundamental changes to NHS commissioning. It was suggested that the mechanisms of the scheme could be improved, particularly to ensure that eligible families apply for and receive Healthy Start in a timely and straightforward

way. Recommendations that were ranked as of high importance that related to this overarching recommendation are shown in Table 18.

Table 18: Recommendation one – related recommendations ranked as high importance

Recommendation	Impact	Feasibility
Improve the application process and link to other welfare benefits for example include Healthy Start in routine communications relating to qualifying benefits and tax credits	High	High
Speed up the process of authorising claims and issuing vouchers, inform applicants when they should follow up their applications and provide a free telephone helpline.	High	High
Provide application forms in different languages and formats	High	High
Index link the voucher value to rising prices of Healthy Start goods (fruit, vegetables and plain cows' milk)	High	Medium
Simplify eligibility criteria in-line with proposed benefit changes/universal credit so that everyone knows who is eligible	High	Medium
Provide vouchers in smaller denominations	High	Medium
Consider all the incoming changes to commissioning in the recommendations which will bring even more diversity to local commissioning arrangements	High	Unknown

When asked about how Healthy Start could be improved, a major issue for most participants was the importance of integrating Healthy Start with other health programmes such as the Healthy Child programme, healthy weight policy and reducing health inequalities. A minority suggested that there was not yet sufficient evidence of the effectiveness of Healthy Start to justify this integration. Integration across agencies for example NHS, local authorities and benefits offices was seen as crucial so that at a local level, everyone concerned knows that Healthy Start is part of their work programme. Linking at a national level between relevant government departments (DH, DWP, HMRC) was deemed important but suggested to have administrative implications. A common theme of the discussions was that linking with the benefits system would improve reach to all those who are eligible although it was felt there would be a cost implication of this. It was suggested that there was a need to create commissioning specifications for Healthy Start following the incoming changes to NHS commissioning arrangements. However, it was felt that there were too many unknowns about how this would work to assess feasibility at this point. In the words of one participant:

Feasibility of considering incoming changes to commissioning will depend on what the changes are. It is feasible that there will be a seamless handover but at this stage we don't know who it will be (Workshop 1)

Generally, workshop participants felt that the feasibility of any recommendations that would have a substantial cost implication, such as widening access or index linking the voucher value was not high. In terms of increasing the voucher value, there were strong feelings that this should be linked to the cost of fruit, vegetables and milk but not to infant formula. Many participants felt that not increasing the value of the voucher meant that families would not be able to improve their diets as the scheme intended. It was suggested that the increase in cost of £3 million for every 10p increase in voucher value (figures provided by an attendee from the DH) was potentially cost-effective if it resulted in improved nutrition. Some discussion took place around the notion that the budget of the Healthy Start scheme would not be increased and therefore widening access would have to be balanced by lower voucher value or conversely increasing voucher value would mean changes to eligibility. The consensus was that it was more important to increase the voucher value for those most in need. For

this reason the recommendations of widening access and increasing eligibility to the child's fifth birthday as suggested by many women in our study was not considered to be of high importance.

Another key strategy suggested was to develop process and performance indicators, for example targets for the proportion of eligible women registered for the scheme. This would build the evidence base on take-up and usage. One of the working groups suggested a rethink of the scheme:

Take the opportunity to redefine Healthy Start, establish clear goals, and then design a scheme to deliver those goals, including a sane administrative pathway (workshop 2).

2: Make vitamin supplements free/universally available for pregnant women, postnatal women and children up to their fifth birthday

Recommended action for: DH, PCTs and successor organisations, Clinical Commissioning Groups, Directors of Public Health

Making vitamin supplements free and/or universally available for pregnant and postnatal women and young children was considered to be of *high* importance and *high* feasibility.

Participants at both workshops agreed that this was either the first or second priority recommendation. Implementing free, universal vitamin supplementation would eradicate many of the current problems with the supply and distribution chain in the opinion of many participants. In this sense many of the following recommendations about vitamin supplements would be unnecessary if this overarching recommendation were adopted. Table 19 should be read with that in mind.

Table 19: Recommendation two – related recommendations ranked as high importance

Recommendation	Impact	Feasibility
Make Healthy Start vitamin supplements universally available and not dependent on eligibility criteria.	High	High
Give/sell/prescribe Healthy Start vitamin supplements to pregnant/pre-conceptional women at the earliest opportunity without waiting for eligibility for Healthy Start to be confirmed.	High	High
In light of the forthcoming SACN review (due in autumn 2014), review the dose of vitamin D for women and children and the recommended starting age for the children's vitamins	High	High
Clarify all benefits and risks of vitamin supplements being distributed to all pregnant women	High	High
Sort out the distribution and supply chain to sustain continuous stock of in- date vitamin supplements	High	Medium
If continuing with vitamin coupons, ensure they are easily identifiable and remove expiry dates	High	Medium
Develop vitamin supplement distribution mechanisms that do not require women to make a separate trip to collect them	High	Medium
Increase awareness among practitioners, especially GPs, of the benefits of vitamin supplements for pregnant women, new mothers and young children	High	Medium
Increase awareness among women and families of the benefits of vitamin supplements for pregnant women, new mothers and young children	High	Medium

This overarching recommendation was felt to be of high feasibility because there would be considerable savings in terms of reduced administration costs and reduced costs of treating vitamin deficiencies e.g. rickets. It was also suggested that there should be a financial contribution to funding this recommendation from the public health budget. There was agreement that the voucher and vitamin supplementation components of the Healthy Start scheme should be separated. The main reason for this was that those who would benefit from vitamin supplementation are not necessarily the same as those who are eligible for fruit and vegetable vouchers. For example risk factors for vitamin D deficiency include women who have limited skin exposure to sunlight or who are of south Asian, African, Caribbean or Middle Eastern descent or who are obese (NICE, 2008). Consequently providing free vitamin supplements according to income misses many of those at risk. Workshop participants suggested that, by separating the vitamin component from the Healthy Start eligibility criteria and providing universal free supplementation, Healthy Start could be an excellent vehicle for meeting vitamin D policy aims. In the light of the administrative complexity involved, it was illogical to them that Healthy Start vitamins were only a means of providing free supplements to those who could not afford to purchase them. It was also felt that supplementation for pregnant women needs to start earlier than is achievable within the current process for registering for Healthy Start. There was a suggestion that there should be different eligibility criteria for women's vitamin supplements compared to those for children's vitamin supplements:

Boroughs make different decisions about women and children, the latter is more complicated. So, propose different eligibility criteria for vitamins for women and those for children (workshop 2)

Some participants thought there needed to be more evidence on the costs and benefits of universal supplementation. One view was that only vitamin D supplements should be given universally. There was evident concern among participants about perceived inconsistencies in national guidance regarding vitamin supplementation and health practitioners were reported to be confused. For example there was apparent confusion about the appropriate age for children to commence vitamin supplementation, despite there being guidelines within the Healthy Start materials for health professionals. A representative from one locality reported a marked reduction in hospital admissions for hypocalcaemic convulsions in infants following implementation of a local strategy to provide Healthy Start vitamin supplements for all children from one month old. However the Healthy Start website recommends starting vitamin supplementation from six months or from one month old if the baby is breastfed and is likely to have low vitamin stores (i.e. the mother did not take vitamin D supplements during pregnancy). Some health professional are concerned that infants who are formula fed and given vitamin supplementation before six months may be getting too much vitamin A. One participant pointed out what they believed to be policy inconsistencies in terms of vitamin D supplementation:

A Chief Medical Office letter in March 2012 said that *all* pregnant women and breastfeeding mothers and children under five are at risk of vitamin D deficiency. This was linked to Scottish website and did not match Healthy Start information (workshop 1)

Some participants expressed concerns about level of vitamin D in Healthy Start vitamin supplements. One participant who represented paediatricians suggested that the content of vitamin D in Healthy Start supplements was lower than he believed it should be:

Vitamin D content is lower than recommended but it is better than nothing – I would not like universal supplementation to be delayed for this reason (workshop 2).

Barriers to the implementation of this recommendation were suggested to be: not knowing who is responsible for implementation of Healthy Start in the new NHS commissioning arrangements; concerns about the cost; possible delay while awaiting review of dosage; the logistics of distributing vitamin supplements and local organisation.

Suggested strategies for change included: distribution of vitamin supplements by midwives and health visitors; increasing awareness and education of women and practitioners; rapid commissioning of review of dosage and starting age (this review is underway by SACN) clarification of differences in distribution mechanisms; provision of vitamin supplements where there are universal services and where women go.

Another key suggestion relating to this recommendation was to develop process and performance indicators, for example a target for the percentage uptake of vitamin supplements measured at antenatal booking visit, birth and first immunisation.

3: Develop a communication strategy to increase awareness of the Healthy Start scheme among the general population, eligible families, health professionals and retailers

Recommended action for DH, PCTs/successor organisations, local authorities, Directors of Children's Social Care Services, children's centres, Public Health England, Directors of Public Health, professional organisations, the media, health and social care practitioners, retailers.

Developing a communication strategy to increase awareness of the Healthy Start scheme was considered to be of *high* importance and *high* feasibility.

There was consensus across both workshops that there was a need to raise the profile of Healthy Start among the general population, eligible families, health practitioners and retailers, to provide accurate and consistent information about healthy eating and to promote the scheme among retailers. Recommendations that were ranked as of high importance that related to this overarching recommendation are shown in Table 20.

Table 20: Recommendation three – related recommendations ranked as high importance

Recommendation	Impact	Feasibility
Develop a proper communications package around the whole of Healthy Start, including publicising the website, and developing tools to identify eligibility now and following changes to welfare	High	High
Develop plans for communicating changes to eligibility criteria resulting from incoming changes to the welfare system	High	High
Increase awareness of the target population of the Healthy Start scheme and what it is trying to achieve e.g. through local and national media campaigns	High	High
Promotion of Healthy Start should include clear messages about the goods which can be bought with vouchers including recent update to include frozen fruit and vegetables	High	High
Embed provision of information about Healthy Start in antenatal, postnatal and child health pathways and guidelines e.g. through routine enquiry about possible eligibility and provision of information, and audit compliance	High	Medium
Include all of the early years workforce from all sectors in promoting Healthy Start to families and providing health-related information	High	Medium
Ensure that retailers registered for the scheme clearly indicate this and that local lists of registered retailers are easily available for beneficiaries and practitioners	High	Medium
Health promotion needs to address misunderstandings about what constitutes healthy fruit and vegetables. There is a common belief amongst many parents that goods such as fruit yoghurts and fruit drinks are healthy options	High	Medium
Use contemporary methods of making contact with women e.g. text messaging, websites, drop-in centres	High	Medium
Work with retailers to ensure the system for registration for Healthy Start and redeeming the value of vouchers is as simple as possible	High	Medium
Promote Healthy Start more with small retailers, market stalls, community food projects and value supermarkets to increase outlets and options for women	High	Low
Work with retailers to ensure consistency in how vouchers can be used (e.g. how many can be accepted in one transaction and for what goods) and to eradicate negative attitudes from retail staff	High	Low
Ensure adequate supply of information in a variety of accessible formats including relevant languages	High	Low

Workshop participants thought that a national multi-media campaign would be more cost effective than local ones. They also suggested that it was important to promote Healthy Start to men, especially those who do not speak English or are otherwise 'hard to reach'. It was felt that all families need accurate information about healthy eating and that this could be delivered through Start4life and Change4life campaigns and via schools and nurseries. Workshop participants thought that cost would be the main barrier to this recommendation. There were numerous suggestions for methods of communication such as via social networking(for example Mumsnet), developing an app., and using parent champions. The need to be imaginative and not rely on boring leaflets was emphasised. Some participants thought that face-to-face communication was more effective. There was consensus that retailers, especially smaller outlets and market stalls needed to be more aware

of the scheme but this was felt to have low feasibility because it required input from busy practitioners and was administratively complex.

4: Develop an overarching strategy for vulnerable women to increase engagement with health services accompanied by care pathways and staff training

Recommended action for: DH, NICE, Schools, community groups, Asylum Teams, voluntary sector, health and social care practitioners, public health coordinating with acute and primary care, early years' teams, children's centres, Clinical Commissioning Groups.

Developing an overarching strategy for vulnerable women was considered to be of *high* importance and *medium* feasibility.

While this recommendation was felt to be important and a priority it was scored as of medium feasibility because of inherent challenges. These included the need to define locally what is meant by 'vulnerable':

We need to define 'vulnerable' e.g. nutritional or financial. Definition must be locally relevant. There needs to be a national level overarching strategy with local implementation. Services should go to the women (workshop 1).

Further challenges were said to be getting buy-in from different sectors and diverse configurations of services. It was felt that achieving early engagement with services was particularly important for folic acid supplementation and that there could be cost-savings in terms of improved outcomes. This reflects current NICE guidance (NICE, 2008) that folic acid supplementation should begin either pre-conception or as early in pregnancy as possible. Under the current arrangements for Healthy Start, women cannot apply until the 10th week of pregnancy and do not receive vouchers and vitamin coupons until their application has been processed, by which time it is too late for folic acid to be effective in reducing the incidence of neural tube defects. The current system of requiring a health professional to sign the application form was not seen to facilitate early engagement of families; rather it was viewed as a barrier to registration for Healthy Start.

Key strategies included identification of local, regional and national leads who would be accountable for the strategy and for developing good working relationships and partnerships across sectors to focus on the needs of clients.

5: Provide education and training for health and social care practitioners in all sectors and disciplines that encounter pregnant women and young families regarding their role in the Healthy Start scheme

Recommended action for: Public Health England, professional organisations, DH, health practitioners, SACN, higher education institutions, breastfeeding supporters, voluntary groups, children's centres.

Educating and training practitioners about Healthy Start was considered to be of *high* importance and *high* feasibility.

Workshop participants felt that this recommendation was needed to support implementation of the other priority recommendations. It was suggested that this would benefit health practitioners:

There will be benefits for healthcare professionals. They will be able to do their jobs better and be able to deliver healthy lifestyle messages (workshop 1)

Recommendations that were ranked as of high importance that related to this overarching recommendation are shown in Table 21.

Table 21: Recommendation five – related recommendations ranked as high importance

Recommendation	Impact	Feasibility
Practitioners who encounter pregnant women and young families require education and training about their role regarding Healthy Start so they don't see themselves as gatekeepers	High	High
Create core resources for local champions to use	High	High
Raise awareness of DH website and e-learning CPD course, Include in Key Performance Indicators/Quality Outcomes Framework for midwives and health visitors	High	High

It was suggested that training should include healthy eating, infant feeding and the importance of vitamins, especially vitamin D and should be mandatory. As in several of the other recommendations leadership was felt to be important as one participant stated:

There is a need for senior strategic leadership as well as Healthy Start practitioners, for example lead midwives in maternity units. The senior person should be accountable for Healthy Start, since it's a statutory scheme and it affects public health (workshop 2)

The main barriers identified were resource issues of time and cost and the need to 'undo incorrect knowledge'. However all recommendations relating to this overarching recommendation were categorised as of high feasibility.

6: Reframe the debate between breastfeeding and formula feeding. Research the impact of use of Healthy Start vouchers on infant feeding decisions

Recommended action for: Public Health England, Professional organisations, DH, health practitioners, SACN, higher education institutions, breastfeeding supporters, voluntary groups, children's centres.

Reframing the debate between breastfeeding and formula feeding and researching the impact of Healthy Start voucher use on infant feeding decisions was considered to be of *high* importance and *medium* feasibility.

This theoretical recommendation reflected a tension expressed by participants between effective promotion of breastfeeding and the Healthy Start scheme. The medium feasibility rating given to this recommendation reflects this tension. There was divergence of opinion among workshop participants about whether or not infant formula should be included as an allowable product for purchase with Healthy Start vouchers. However most participants agreed that it should be retained but that its inclusion should be reframed as a *nutritional safety net* and not, as many felt was implied currently, as a *healthy food*. There was discussion at both workshops regarding whether the value of the vouchers should be increased to cover the entire cost of infant formula or whether vouchers should be differentiated so that some could be used towards the cost of infant formula but others could only be used for allowable healthy foods. A central tenet of this discussion however was that breastfeeding women should be in no way financially disadvantaged compared to those deciding to formula feed.

Need to clarify exactly what the scheme is for: is it to increase breastfeeding or is it to improve diet, or to provide a nutritional safety net. Should infant formula be included (workshop 2)?

Removing [infant formula] would discriminate against low-income women. There may be unintended consequences (workshop 1)

The link between healthy diet and breastfeeding is not a widely understood message. Reframe inclusion of infant formula as a safety net. Infant formula is currently included as a healthy option (workshop 2)

A further issue of concern was differential guidelines for vitamin supplementation of babies for those who are breastfed and those who are formula fed. The advice that infants who are formula fed do not need supplementation whereas those who are breastfed do was felt to undermine breastfeeding by making it appear deficient. Therefore a second reframing of the debate referred to the need to ensure that breastfeeding is portrayed as the norm.

Unless the evidence suggests detrimental effects, the guidelines (on vitamin supplementation) should be the same for all women regardless of feeding choice. If vitamin A is the concern – take vitamin A out as there is no evidence of deficiency in the UK (workshop 2)

Recommendations that were ranked as of high importance that related to this overarching recommendation are shown in Table six.

Table 22: Recommendation six – related recommendations ranked as high importance

Recommendation	Impact	Feasibility
Differential guidelines regarding the use of vitamin supplements for infants who are breastfed and those who are formula fed need to be framed in such way that breastmilk is seen as the norm and not deficient.	High	High
Information about breastfeeding for parents should avoid giving the impression that women can only breastfeed if they have a healthy diet as this can be misinterpreted and felt to be unrealistic for many low-income families.	High	Medium
There needs to be consideration of the implications of retaining or removing infant formula from Healthy Start for the health and nutrition of infants and children in low-income groups	High	Medium
Any increase in voucher value must be for both formula feeding and breastfeeding families	High	Medium

Priority aspects of reframing the debate between breastfeeding and formula feeding and researching the impact of Healthy Start voucher use on infant feeding decisions were identified as the need to promote breastfeeding effectively, and to retain infant formula as part of the scheme but to rebrand it as a safety net and not as a healthy food.

Challenges to this recommendation were suggested to be the lobbying power of infant formula companies and misperceptions of journalists and the media. Suggested strategies were to improve education for health professionals and in schools.

7: Evaluate the costs and effectiveness of Healthy Start vouchers and vitamins

Recommended action for: DH, research funders, academic institutions

Evaluating the costs and effectiveness of Healthy Start vouchers and vitamins was considered to be of *high* important but *low* feasibility.

Workshop participants thought this recommendation was important because currently there is not yet strong evidence of the effects of Healthy Start on health outcomes. However it was felt that it would be methodologically challenging because the scheme was already established nationally and it would be difficult to identify an appropriate control group. Other challenges identified that led to a low feasibility rating was the difficulty of demonstrating long term outcomes such as the impact on dietary patterns for families and children and the feeling that the voucher value was too low to result in increased intake of fruit and vegetables in the short term.

One participant commented:

Do research on whether Healthy Start vouchers work – create a theoretical framework through economic and outcomes modelling, then test (workshop 2).

One recommendation that was ranked as of high importance that related to this overarching recommendation is shown in Table 23:

Table 23: Recommendation seven – related recommendations ranked as high importance

Recommendation	Impact	Feasibility
Model the impact of using different thresholds for voucher eligibility (income and age thresholds), assessing costs and benefits, to achieve defined public health goals	High	Medium

Chapter 7 provides details of an assessment of the feasibility of using national databases to assess the impact of Healthy Start vouchers on the demand for fruit, vegetables, vitamins, milk and breastfeeding, and other goods among low income families. This final priority recommendation was amalgamated with the research recommendations arising from the review of national databases. Further topics for future research are included at the end of this report.

CHAPTER 7: THE FEASIBILITY OF USING NATIONAL DATABASES TO ASSESS THE IMPACT OF HEALTHY START VOUCHERS ON THE DEMAND FOR FRUIT, VEGETABLES, VITAMINS, MILK AND BREASTFEEDING, AND OTHER GOODS AMONG LOW INCOME FAMILIES

7.1 Introduction

The aim of this chapter is to review existing databases to judge their relevance to developing explanatory models of: a) the demand for Healthy Start vouchers, and b) the impact of vouchers on the demand for Healthy Start products (i.e. fresh or frozen fruit and vegetables, vitamin supplementation for women and children, infant formula, plain cows' milk), breastfeeding and other household goods/services, including unhealthy items, among low-income families. This review, together with the economic literature reviewed, is designed to help indicate the feasibility of economic analysis of household demand.

7.2 Methods

Six policy questions framed consideration of the evidence on feasibility:

1. Is participation in Healthy Start associated with an increase in demand for products/activity supported by the Healthy Start scheme (i.e. vegetables, fruits, milk, formula, vitamins, breastfeeding)?
2. Is participation in Healthy Start associated with changes in demand for products/activity not supported by the Healthy Start scheme?, for example:
 - i. 'healthy' non-Healthy Start related products (using poultry as an exemplar)
 - ii. 'unhealthy' non-Healthy Start related products (using cake as an exemplar)
3. Are Healthy Start vouchers associated with an increase in demand for food overall?
4. What is the impact of changing the value of Healthy Start vouchers on the demand for Healthy Start products?
5. What is the predicted impact of changing the eligibility criteria at population level?
6. What is the most cost-effective way of increasing the use of vouchers among Healthy Start participants?

These questions allow the intended impact of Healthy Start to be evaluated (question 1). Questions 2 and 3 also facilitate evaluation of potential unintended impacts, which consumer theory suggests could be relevant, as any increase in income (including 'transfer income' in the form of vouchers) might be spent on the intended goods/services, other goods/services which might be considered 'healthy' or not or potentially also saved. Questions 4 and 5 focus on the impact of changing the specification of current policy and question 6 is focussed on increasing the cost-effectiveness of increasing existing coverage rates.

The six policy questions could all be addressed using either secondary or primary data. However, to maximise the likelihood of using existing data, the prime focus of the economics feasibility study was the potential use of existing datasets. The types of data considered included:

- Datasets on Healthy Start held by, or for, the Department of Health;
- Publicly accessible national datasets identified in Dyson et al. (2007);
- Commercially available datasets.

7.2.1 Data sets on Healthy Start held by, or for, the Department of Health

Four databases were provided for consideration:

1. Healthy Start Beneficiary/Applicant Database (DB1), held at individual beneficiary/applicant level by Serco (formerly Vertex) since 2008
2. Healthy Start Retailer Database (DB2), held at individual retailer level by Multi Resource Marketing Ltd (MRM).
3. Healthy Start Vitamins Database (DB3)
4. FDS International Survey Database (DB4), the outcome of surveys carried to evaluate the impact of information campaigns on Healthy Start

Each database was reviewed (by either NA or SP), using a set of pre-defined questions (see Appendix 31), to assess; the nature and extent of details held, whether data could be linked to other databases, whether a comparative sample might be generated to allow the impact on demand to be estimated, and whether relevant proxies for demand could be identified to help determine the relationship between vouchers and healthy eating among (non)recipients. Any queries were discussed as a team, with the data custodians and the DH. Two databases (DB1 and DB2) were subject to further examination, as they quickly appeared more useful. This included; presentation of descriptive statistics, degree and types of missing data, quality of data. As datasets and analyses varied, methods of analysis are described in associated appendices.

7.2.2 Publicly accessible national datasets identified in Dyson et al. (2007)

The data sets identified by Dyson et al. (2007) plus their updated versions were reviewed by one author (MD or NA), using the following bespoke questions;

1. Can participation in the Healthy Start scheme be identified?
2. Can eligible non-participants and eligible participants be identified, using the criteria set out by Dyson et al. (2007)?
3. Can participation / non-participation be linked to consumption or expenditure patterns for products supported by Healthy Start vouchers or breastfeeding?
4. Can participation / non-participation be linked to consumption or expenditure patterns for products not supported by Healthy Start?
5. What individual or area level identifiers exist to help links with Healthy Start datasets held for, or by, the DH?
6. Can relevant proxies for demand be identified to help determine the relationship between vouchers and healthy eating among recipients/non recipients?
7. What data exists to further support explanatory models of demand?

Given the finding by Dyson et al. (2007) that few data sets were able to directly identify Healthy Start recipients and to maximise the potential for linking with the largest database of Healthy Start beneficiaries (DB1), only data sets with the required age groups (0-5) and/or pregnant women from

2007 onwards were considered. Only databases with direct questions on Healthy Start (IFS, NDNS) and relevant questions to Healthy Start eligibility criteria (BHPS 2007-8, SHS, LCFS, HSE) were taken forward to investigate further; whether the surveys also asked about products supported by the Healthy Start scheme; how the quantity of food consumed or money spent on goods supported by Healthy Start and any associated prices were reported; and the range of socio-economic variables reported.

7.2.3 Commercially available data

The potential to identify Healthy Start recipients along with documented evidence of purchase behaviour makes supermarket data an important avenue for further investigation, especially as other datasets are based on self-reported evidence. As 23% of all vouchers used in England from Feb 2010 to Feb 2011 were redeemed through Tesco (MRM Management Information reports) and 28% of recipients for Healthy Start vouchers since 2008 most commonly redeemed their vouchers in Tesco, this supermarket was the focus of our time-restricted research in this area⁷. Expenditure on products supported by Healthy Start are not fully represented by supermarket shopping as both smaller independent retailers and market traders can opt to join the scheme. Therefore, the potential of other consumer panel data collected and held by market research companies was also explored. Our qualitative exploration used snowballing approaches to internet and literature searches coupled with telephone interviews (by JFR) with all companies and others holding additional data as well as some email follow-up for clarification. From each database we ascertained whether Healthy Start recipients could be identified from data collected or stored and, if so, the type of analyses that would be possible to run.

7.3 Results

7.3.1 Data sets on Healthy Start held by, or for, the Department of Health

Brief description of database

Healthy Start Beneficiary/Applicant Database (DB1) is a live database (updated daily) that is used to manage the application process of Healthy Start. It includes information on beneficiaries (recipients i.e. children less than four years old including the unborn) and the applicants (i.e. individuals who apply for vouchers on behalf of the beneficiaries i.e. carers, parents) of Healthy Start vouchers. This database collects data from a number of sources: DWP, HMRC and the system in use prior to Serco taking on the contract with DH (prior company known as EWA). It is used to generate management information reports for the DH every four weeks. Table 24 gives an overview of the information included in DB1 for beneficiaries and applicants and indicates the limited subset of data we received⁸. Any analysis of DB1 is therefore based only on applicant rather than beneficiary level data.

⁷Dyson et al. (2007) indicated that data on foods and drinks purchased by Healthy Start recipients at Tesco would “provide approximately 30% of product expenditure for the approximate 70% of recipients who have redeemed their vouchers” and “16% of all Healthy Start eligibles (regardless of uptake)”. The percentages today suggest Tesco accounts for 17% of all eligible participants of Healthy Start in England.

⁸From SERCO on 19/07/2011

Table 24: Overview of Database 1

Unit of observation	Type of information	
Beneficiary	<ul style="list-style-type: none">• Personal details (unique ID, date of birth⁹)• Date of commencement of receipt of vouchers• Details of deceased beneficiary (name, notification date of demise, unique ID)	
Applicant	<ul style="list-style-type: none">• Personal details (unique ID, date of birth, address, name)• Characteristics of application (applicant type, outcome of application)• Data fields in the Healthy Start application form<ul style="list-style-type: none">○ Receipt of state-benefits○ Pregnant or not○ Number & ages of children (</=4 years)○ Partner details (date of birth, receipt of state-benefits)○ Carer details (date of birth, receipt of state-benefits)• Vouchers<ul style="list-style-type: none">○ Number of vouchers received○ Number of vouchers redeemed○ Unique ID of main retailer where vouchers were redeemed○ Expiry date of vouchers○ Status of vouchers <p>Subset of data received by Brunel</p> <table><tr><td>Data fields in the Healthy Start application form<ul style="list-style-type: none">○ Receipt of state benefits○ Pregnant or not○ Number & ages of children (</=4 years)○ Partner details (date of birth, receipt of state-benefits)○ Carer details (date of birth, receipt of state-benefits)Voucher related information<ul style="list-style-type: none">○ Number of vouchers received○ Number of vouchers redeemed○ Unique ID of main retailer where vouchers were redeemed</td></tr></table>	Data fields in the Healthy Start application form <ul style="list-style-type: none">○ Receipt of state benefits○ Pregnant or not○ Number & ages of children (</=4 years)○ Partner details (date of birth, receipt of state-benefits)○ Carer details (date of birth, receipt of state-benefits) Voucher related information <ul style="list-style-type: none">○ Number of vouchers received○ Number of vouchers redeemed○ Unique ID of main retailer where vouchers were redeemed
Data fields in the Healthy Start application form <ul style="list-style-type: none">○ Receipt of state benefits○ Pregnant or not○ Number & ages of children (</=4 years)○ Partner details (date of birth, receipt of state-benefits)○ Carer details (date of birth, receipt of state-benefits) Voucher related information <ul style="list-style-type: none">○ Number of vouchers received○ Number of vouchers redeemed○ Unique ID of main retailer where vouchers were redeemed		

Healthy Start Retailer Database (DB2) is used to manage retailers' application within the Healthy Start scheme. It includes information on participating retailers and is maintained at individual supplier level. Table 25 shows the variables included. Based on data extracted on 04/07/2011 by MRM, a total of 16,153 suppliers are recorded. Of those, 12,246 are successfully registered suppliers, 2,656 are suppliers that have lapsed and 1,242 are suppliers that ceased trading. Of 12,246 active suppliers, 9,647 are in England, 1,352 in Scotland, 715 in Wales and 532 in Northern Ireland.

⁹ This is blank if the beneficiary is pregnant

Table 25: Overview of Database 2

Unit of observation	Type of information
Supplier level	<ul style="list-style-type: none"> • Unique reference number • Location (country, postcode, grid reference i.e. y&x-coordinates) • Status codes- these include an indication of supplier's status on the system, e.g. supplier pre-registered, possible duplicate, supplier ceased trading, etc. • Trading names and address • Payment names and address • Agent - this indicates if this is a voucher clearing house • Category of suppliers • Number of outlets registered for • Average number of tills per outlet • Type of Healthy Start products the retailer sells • Whether denied application to WFS or Healthy Start before • Whether application previously disqualified

The Healthy Start Vitamins Database (DB3) is a Vitamins Claims Database held by the Department of Health. This database records the returns filled in by each PCT in England (no information from other countries); the number of PCTs included in the database is between 150 and 171. The database is organised into several tables, each table providing claim information for quarters ending in June, September, December and March of each financial year, starting 2007 (financial year is from 1 April to 31 March).

Table 26 indicates the variables included in each table (referring to each quarter). In addition, the following summary statistics are provided in each quarter: total number of PCTs for period; number of PCTs who have sent a return; number of outstanding returns; total children's drops; and total women's tablets.

Table 26: Overview of Database 3

Unit of observation	Type of information
PCT	<ul style="list-style-type: none"> • Name of the PCT • Region where it is located • Healthy Start children's drops - quantity issued • Healthy Start TART children's drops - total costs • Healthy Start women's tablets - quantity issued • Healthy Start women's tablets - total costs • Total costs of vitamins (sum of children's drops and women's tablets)

The FDS International Survey Database (DB4) holds the results, at individual recipient level, of a sample survey run in 2010 designed to: a) to understand pre-campaign behaviour and attitudes towards the Healthy Start scheme and vouchers/ coupons (baseline survey); and b) to explore and measure the impact of the new communications strategy (follow-up surveys). The sample for the baseline was 600 telephone interviews conducted between 7th and 16th of January 2010. Each interview lasted about 20 minutes. The sample was structured based on the age of the recipient and the age of the oldest child, i.e. 100 each from: (i) under 18 who is pregnant; (ii) over 18 who is pregnant; (iii) over 18 who has a child of 0-6 months; (iv) over 18 who has a child of 6-11 months;

and (v) over 18 who has a child of 1-4 years. The rationale for sample design and sample size is unavailable in the documentation. The contact details of recipients were provided by the DH.

The objectives of the follow-up surveys [one each in 2011 (wave 1) and 2012 (wave 2)] were: (a) to evaluate and track changes in perception and levels of engagement with the scheme, following the introduction of the new information campaign activity and on-going changes to this activity; and (b) to establish any difference in perception by recipient segment. The sample size of follow-up surveys are different from the baseline (n= 600 in baseline; n=1,400 in wave 1; and n=1,242 in wave 2).

Although this survey covers a very small proportion of the recipient population, it is a large dataset (over 668 variables) and explores issues not covered elsewhere. Table 27 indicates the variables included.

Table 27: Overview of Database 4

Unit of observation	Type of information
Individual recipient	<ul style="list-style-type: none"> • Perceptions and experience of the Healthy Start scheme • Usage and satisfaction with the direct mailing information • Usage and experience of using the vouchers (most relevant variables for this report): <ul style="list-style-type: none"> ○ Awareness of Healthy Start products that can be purchased with the vouchers ○ Ease of using vouchers in shops ○ Common problems encountered using vouchers ○ Reasons respondents use vouchers (e.g. financial gain) ○ The type of vitamins claimed ○ Reasons for not claiming vitamins (e.g. lack of knowledge) ○ Common collection points for vitamins • Views on the impact of changes to the scheme and how it could be improved

Review and potential uses of databases

Appendices 32-35 show the detailed results from reviewing each of the data sets. Each data set is first considered for use on its own to conduct economic analysis of the demand for products supported by Healthy Start vouchers and secondly in conjunction with other datasets (either other Healthy Start datasets and/or others).

DB1 dataset released to Brunel

The DB1 dataset provided was at the applicant level and does not include any information or proxies for the purchase/consumption of Healthy Start or non-Healthy Start products. Appendices 36-39 show the descriptive statistics and extent of missing data in DB1. The main finding is that it is not possible to use DB1 on its own to examine the effectiveness of Healthy Start, for example, on the impact of receipt of vouchers on Healthy Start or non-Healthy Start products.

While it is recognised that the use rate of Healthy Start vouchers is relatively high (approximately 84%)¹⁰, the missing 17% translates to 85,000 of an annual enrolment of 500,000 missing out on intended benefits, with expected implications for both health and equity. The dataset can be used to

¹⁰ The new data based on the Infant Feeding Survey 2010 showed that about 83% of mothers used the vouchers (McAndrew et al. 2012).

answer the following question: *Which factors are likely to be associated with Healthy Start recipients' use of Healthy Start vouchers?*

Results of data integrity checks indicated implausible values of some key variables. For example, for the variable 'number of vouchers received' 1780 observations (0.3% of recipients of voucher) received >1600 vouchers. Even given liberal assumptions¹¹, it is unlikely that any recipient would have been sent so many vouchers. Further investigation of these cases is needed by SERCO. For another important variable, 'postcode of applicant' we found that: a) 11.4% of the observations had characters that were not plausible (\neq >4); b) around 1% of observations were names of towns in England not postcodes; and c) spacing between outward and inward parts of the postcodes were not consistent. These issues were discussed with SERCO who acknowledged them and indicated that work has already commenced on rectifying the postcode data¹².

An illustrative analysis to understand the use of Healthy Start vouchers was conducted using a derived dependent variable for use rate¹³ of vouchers. This was regressed on a number of explanatory variables held within the dataset that measure characteristics of the Healthy Start applicants who are issued with at least one voucher. The nature of data for this dependent variable is challenging to model as it has a censored distribution at both ends and skewed; around 65,680 observations had use rate of 100% and 4,478 people had a use rate of 0%. This implies explanatory models other than OLS are required such as a Tobit regression model (Austin et al. 2000). Following approaches reviewed in the literature, 'use rate' could also be specified as full use/partial use/no use, and therefore a multinomial model was also considered. The independent variables included in the regression models were; age of applicant, whether applicant has a partner or not, whether applicant has a carer, whether the applicant receives benefits (represented by income support, job seekers allowance, tax credit, work tax credit - represented by individual variables), age of children of applicant, number of children, higher voucher value¹⁴.

The 'results' of the illustrative analyses are given in Appendix 40 but the numbers and results should be disregarded at this stage for several reasons: first, as shown by our data integrity checks, there are potential measurement errors related to the use rate of vouchers (the dependent variable) given the implausible values found for 'number of vouchers issued'; and secondly, these models exclude data on beneficiaries. If these issues were to be addressed, for example by SERCO, these types of models could provide important target variables for improving use rate of vouchers. For example, assuming that the results of the models were correct (which they are not), they would imply that applicants who are relatively younger; and have child(ren) less than a year old were more likely not to use all their vouchers.

¹¹ The following conservative assumptions were made in order to estimate the maximum number of vouchers a person can receive in the 3 years 4 weeks period under consideration (1st April 2008 – 28th April 2011):

1. A person has 8 children (which is the maximum number as shown by Appendix 37), two of them twins (under 1 year), and the rest above 1 year but below 4 years
2. The criteria for number of vouchers has not changed during the time period under consideration
3. Due to whatever reason, the number of vouchers issued for this person has not changed

This implies that each week (in the 160 weeks) this person received 10 vouchers indicating a possible maximum total of 1600 vouchers during the entire period under consideration.

¹² We could supply a list of postcodes for checking by ID code.

¹³ Derivation: (number of vouchers issued to applicant - number of vouchers used by applicant) / number of vouchers issued x 100%.

¹⁴ This proxy variable is specified as an 'external shock' indicating whether voucher value is high or not. Given our study period, voucher value has changed only once in April 2009 (from £3.00 to £3.10). Thus the variable indicating high voucher value would take the value 1 if date of application was from 1 April 2009 to date and 0 otherwise.

DB2 dataset

Appendices 41-43 describe the variables in DB2. Analysis around understanding the impact of vouchers or the usage of vouchers cannot be undertaken solely with DB2 data as no data are available at beneficiary level.

The integrity of the, much smaller, DB2 data was better than DB1, with only one issue found; five observations of the postcode of retailers had inward codes missing (last part of a post code). However, more notably, information from Tesco and Asda supermarkets relate only to a head office, irrespective of where a voucher is redeemed within the store network. Any area based analysis using this dataset is currently hampered by the homogeneity of data submitted from two large stores that are the main store of choice for using Healthy Start vouchers in over 30% of beneficiaries; Tesco and Asda. Discussions with the data custodians indicated that this is a function of how data are collected. If Tesco and Asda could give the full range of information for each of the stores, by postcode of store, and use of vouchers related to these stores, both area and store based information could be used to evaluate variation in the use of Healthy Start vouchers. Assuming this became available, the best analysis could account for distance to main store of choice as well as a range of store based characteristics such as size (through number of tills) and product range (including type of Healthy Start products sold).

DB3 dataset

As this database is not held at individual beneficiary level, no demand analysis at individual beneficiary level is possible (see Appendices 44-48 for a detailed overview of DB3). Two conditions are required for this dataset to become useful: a) the PCT level information on distribution of vitamins needs to be tied to a PCT based analysis of the number of beneficiaries per quarter or year, and b) the PCT level information needs to be a reliable indication of vitamins used for Healthy Start. Should these be achievable, then an area based explanatory variable could be created e.g. % beneficiaries receiving full course of vitamins or quantity of vitamins dispensed per beneficiary. This *could* be considered as a proxy for the reach of the Healthy Start or quality of the implementation of Healthy Start in an area and might explain the impact on demand for other Healthy Start -supported products if included in a beneficiary-based regression.

DB4 dataset

While the FDS survey database is organised at individual recipient level, there is no possibility for a sufficiently robust comparative analysis because: non-recipients are not targeted; the same recipients are not contacted over time, which would allow some variation in the extent of Healthy Start voucher level; there is currently no linking back to the ID of respondents in the SERCO data; there are problems with the sampling approach; and few data on control variables are collected. If these issues could be addressed by FDS, this data set could address the issue of non-use of vouchers in more detail. Appendices 49-53 provide more details on the data available in DB4.

Potential options for combining Healthy Start datasets

Table 28 shows the type of question(s) that could potentially be addressed using a combination of datasets. The merging of DB1 and DB2 could provide a dataset to analyse around 70% of the beneficiaries. However this would exclude the shop that most people use their vouchers in most of the time (i.e. Tesco) and therefore might be considered to leave a rather biased sample. If Tesco and Asda could improve their data provision the sample could increase to 100%. However, the main question for analysis would need to focus on explaining the use rate of Healthy Start vouchers. The merging of DB1 and DB3 seems, to us, less feasible given the quantity of changes needed to improve

the quality of DB3 data. At present, there is no linking of DB4 to other databases but this could change should different data and improved sampling occur in the future.

Table 28: Overview of questions that can be addressed through combining databases

Datasets	Research questions	Proposed Approach
DB1 and DB2	Which factors are likely to determine Healthy Start recipients' use of Healthy Start vouchers?*	Step 1: Merge DB1 and DB2 (see Appendix 54) Step 2: Same approach as demonstrated in Appendix 40 plus the inclusion of characteristics of suppliers from DB2
DB1 and DB3	Limited aggregate demand analysis at PCT level	Step 1: Merge DB1 and DB3 Step 2: Create a variable that reflects uptake of vitamins per PCT by pulling together total number of tablets or drops from DB3 and total number of beneficiaries per PCT from DB1.

*The combination of the DB1 and DB2 leads to a potentially more robust estimation of this question because it allows the inclusion of data on suppliers that are likely to affect the usage of vouchers (e.g. distance to suppliers) to be accounted for.

7.3.2 Publicly accessible national datasets identified in Dyson et al. (2007)

Appendix 55 shows that while none of the data sets had individual-level identifiers, area-level identifiers are recorded in several datasets and include e.g. local authority codes, area, GP postcode, and Government office region. Such data are available, following acceptance of a 'special application', for three databases (British Household Panel Survey (BHPS), Living Cost and Food Survey (LC&FS), and the Health Survey for England (HSE))¹⁵. While four surveys contained questions about participation in the Healthy Start Voucher scheme, neither the Health Survey for England (2008 and 2009) nor Scottish Health Survey (2008 and 2009) ask sufficiently discriminating questions¹⁶. The National Diet and Nutrition Survey (NDNS) asks respondents: "Do you (Does (child's name) receive any of the following? Healthy Start vouchers (3 and under)". However, there is an insufficient sample size responding to this question to warrant further analysis - only 0.59% of respondents (i.e. n=6) mention using Healthy Start vouchers and none mention using Healthy Start vitamin drops (NDNS, 2008-9). The IFS (2010) is therefore the only database that explores the Healthy Start scheme in sufficient detail, although the actual data is not yet available for release. As details of this survey are presented elsewhere in this report (see Chapter 3) it is not repeated here. However, it is perhaps the most significant development of the field in the last 5 years and has a

¹⁵The Secure Data Service Access version of the British Household Panel Survey (BHPS 1991-2009) contains British National Grid Reference (at 1m resolution) for each household surveyed, derived from the ONS National Statistics Postcode Directory (NSPD). Grid references are presented in terms of Eastings and Northings, which are distance in metres from the origin (0,0). In most cases, the assigned grid reference relates to the building of the matched address closest to the postcode mean. The Secure Data Service version of the dataset has restrictive access conditions and requires application (<http://securedata.data-archive.ac.uk/about/documentation>). Similarly, the Expenditure and Food Survey can provide postcodes after application to the Secure Data Service. Postcode data for the Health Survey for England can be applied for through NATCEN.

¹⁶"At present, are you taking any folic acid supplements such as Solgar folic acid, Pregnacare tablets, Sanatogen Pronatal, or Healthy Start, to supplement your diet or improve your health?"

material influence on the potential for future economic analysis. Most notably, not only is Healthy Start ‘flagged’ but there are a wide range of specific questions on consumption of all foods supported by Healthy Start as well as breastfeeding (see Appendix 56)

Table 29 shows that most of the datasets contain at least some information on the groups eligible for Healthy Start identified by Dyson et al. (2007). Some record information for half of the eligible groups (National Evaluation of the new deal for communities programme 2008¹⁷, BHPS, 2008, Family Resource Survey¹⁸, Families and Children Study¹⁹, and the Continuous Household Survey²⁰) and one dataset (NDNS, 2010), contains information for only one eligibility group. The Living Cost and Food Survey has slightly different age limits for eligibility; 16-49 years for pregnant women, children under 5 and only 5 out of 6 potential groups. The five most relevant databases with respect to potential eligibility are the Infant Feeding Survey, BHPS 2007-08²¹, and Scottish Health Survey followed by the Living Costs and Food Survey, and Heath Survey for England²².

Table 29: Use of Healthy Start eligibility groupings within datasets reviewed

		Pregnant women under age 18	Pregnant women age 18+ and IS	Pregnant women age 18+ and IBJSA	Families with children <age 4 and IS	Families with children <age 4 and IBJSA	Families with children <age 4, CTC and AI<£14,155 ²³
British Household Panel Survey*	2007-2008	✓	✓	✓	✓	✓	✓
	2008-2009	X	X	X	✓	✓	✓
Expenditure and Food Survey (now called Living Costs and Food Survey)*	2007	(ref to pregnant 16-55yrs) ✓	(ref to pregnant 16-55yrs) ✓	(ref to pregnant 16-55yrs) ✓	(ref to child<5 & child<1) ✓	(ref to child<5 & child<1) ✓	(ref to child<5 & child<1) Only CTC
	2008	(ref to pregnant 16-55yrs) ✓	(ref to pregnant 16-55yrs) ✓	(ref to pregnant 16-55yrs) ✓	(ref to child<5 & child<1) ✓	(ref to child<5 & child<1) ✓	(ref to child<5 & child<1) Only CTC
	2009	(ref to pregnant 16-55yrs) ✓	(ref to pregnant 16-55yrs) ✓	(ref to pregnant 16-55yrs) ✓	(ref to child<5 & child<1) ✓	(ref to child<5 & child<1) ✓	(ref to child<5 & child<1) Only CTC
Families and Children Study*	2007-2008	X	X	X	IS , but no ref to child<5	JSA, , but no ref to child<5	CTC and AI, but no ref to child<5
	2008-2009	X	X	X	IS , but no ref to child<5	JSA, , but no ref to child<5	CTC and AI, but no ref to

¹⁷ 3/6 eligible groups represented but no information on families with children under 4 yrs.

¹⁸ Only 2/6 groups represented and none with recorded annual income below £14,155.

¹⁹ There were no questions to pregnant women or families with children under 5.

²⁰ 3/6 groups represented.

²¹ Note; no questions were asked about pregnant women in the 2008-9 survey.

²² Note the age groups for pregnant women and children are slightly different.

		Pregnant women under age 18	Pregnant women age 18+ and IS	Pregnant women age 18+ and IBJSA	Families with children <age 4 and IS	Families with children <age 4 and IBJSA	Families with children <age 4, CTC and AI<£14,155 ²³
							child<5
Family Resources Survey*	2007-2008	X	X	X	√	√	√, but no AI
	2008-2009	X	X	X	√	√	√, but no AI
Health Survey for England*	2007	√ (pregnant women 16+ /10-15)	√ (pregnant women 16+ /10-15)	√ (pregnant women 16+ /10-15)	√ (child <2 or 2-15)	√ (child <2 or 2-15)	√ (child <2 or 2-15)
	2008	√ (pregnant women 16+ /10-15)	√ (pregnant women 16+ /10-15)	√ (pregnant women 16+ /10-15)	√ (child <2 or 2-15)	√ (child <2 or 2-15)	√ (child <2 or 2-15)
	2009	√ (pregnant women 16+ /10-15)	√ (pregnant women 16+ /10-15)	√ (pregnant women 16+ /10-15)	√ (child <2 or 2-15)	√ (child <2 or 2-15)	√ (child <2 or 2-15)
National Evaluation of the New Deal for Communities Programme: Household Survey Data*	2008	X	X	X	√, but no ref to child <4	√, but no ref to child <4	√, but no ref to child <4
Scottish Health Survey*	2008	√, (pregnant 16-49yrs)	√, (pregnant 16-49yrs)	√, (pregnant 16-49yrs)	√	√	√
	2009	√, (pregnant 16-49yrs)	√, (pregnant 16-49yrs)	√, (pregnant 16-49yrs)	√	√	√
Continuous Household Survey*	2007-2008	X	X	X	√	√	√
	2008-2009	X	X	X	√	√	√
	2009-2010	X	X	X	√	√	√
Infant Feeding Survey	2010	N/A	N/A	N/A	N/A	N/A	N/A
National Diet and Nutrition Survey	2008-2009	√	X	X	X	X	X
	2009-2010	√	X	X	X	X	X
KEY: * no reference to breastfeeding; IS= Income Support; IBJSA= Income-based Job Seeker's Allowance; CTC= Child Tax Credit; AI= Annual Income							

Table 30 shows that all report information on fruit and vegetables (further details are provided in Appendices 56-58). However, while the British Household Panel Survey did ask about fresh fruit and vegetables, it only did so to young people aged 11-15 and therefore is not relevant. The HSE (2009) and BHPS did not include questions on milk and the IFS 2010 is the only survey to record anything on breastfeeding and vitamins (see Table 30). Table 31 shows that the BHPS has no relevant economic variables but that quantity of food consumed is recorded by all other surveys. Only Expenditure and Food Survey (now Living Costs and Food Survey) contains data on prices of food and only two refer either to use of voucher (IFS) or money spent (LCFS) on food supported by Healthy Start. Appendix 59 lists the type of socio-economic and demographic control variables and/or proxies usable for

future demand analysis. Age, ethnicity, education, family composition, marital status and occupation are known to be covered in all databases. Income is covered by all except the IFS 2010. The least frequently measured are urbanisation status, tenure status and location/region. The HSE and SHS include the most extensive range of potential control variables.

Table 30: Types of products supported by Healthy Start referred to in datasets reviewed*

	Year	Vegetables	Fruit	Milk products	Type of question asked
British Household Panel Survey	2007-2008	✓	✓	x	How often you eat fresh fruit and vegetables (numeric variable)? <i>[NB Only asked of 11-15 year olds]</i>
Expenditure and Food Survey (now Living Costs and Food Survey)	2007	✓	✓	✓	How many/much bananas(fresh), apples(fresh), pears (fresh), stone fruit(fresh), berries (fresh), fresh milk, fresh low fat milk, preserved milk, dried fruit and nuts, preserved fruit and fruit-based products, leaf and steam vegetables (fresh or chilled), cabbages (fresh or chilled), welfare milk?
	2008	✓	✓	✓	
	2009	✓	✓	✓	
Health Survey for England	2007	✓	✓	✓	<ul style="list-style-type: none"> Not counting cordials, fruit-drinks and squashes, did you drink any fruit juice yesterday? How many small glasses of fruit juice did you drink yesterday? Was any fruit eaten yesterday? Type of fruit (large, small etc) Portions of vegetables, portions of vegetables in composites, portion of fruit juice, portion of dried fruit, portion of frozen/ canned fruit, portion of fruit in composites, total portion of vegetables, total portion of fruit, total portion of fruit and vegetables, kind of milk (whole, semi-skimmed etc.), how much milk.
	2008	✓	✓	✓	
	2009	✓	✓	x	
Scottish Health Survey	2008	✓	✓	✓	Were any vegetables eaten yesterday, number of tablespoons of vegetable eaten yesterday, number of small glasses of fruit juice drank yesterday, any fruit eaten yesterday, type of fruit eaten, how often drink milk, type of milk usually bought (incl.. infant formula)
	2009	✓	✓	✓	
National Diet & Nutrition Survey	2008-2009	✓	✓	✓	Number of fruit, dried fruit, fruit juice, tomatoes, total vegetables including disaggregated foods, total fruit not juice including disaggregated foods, skimmed milk, school subsidy: free school milk, school subsidy: subsidised school milk, school subsidy: free fruit, school subsidy: Healthy Start children vitamin drops (3 and under), school subsidy: Healthy Start vouchers (3 and under)
	2009-2010	✓	✓	✓	
Infant Feeding Survey*	2010	✓	✓	✓	See questions in Appendix 56

* Note the IFS also asked about vitamins

Table 31: Collection of economic variables relevant to estimating impact of vouchers on demand

Survey	Year	Quantity* of HS product consumed	Money / voucher spent on product supported by HS	Price of product supported by HS
British Household Panel Survey	2007-2008	X	X	X
Expenditure and Food Survey (now Living Costs & Food Survey)	2007	√	√	X
	2008	√	√	X
	2009	√	√	X
Health Survey for England	2007	√	X	X
	2008	√	X	X
	2009	√	X	X
Scottish Health Survey	2008	√	X	X
	2009	√	X	X
National Diet & Nutrition Survey	2008-2009	√	X	X
	2009-2010	√	X	X
Infant Feeding Survey	2010	√	√	X

*definition of quantity consumed in LC&FS, HSE, SHS: number of items (i.e. 2 fruits) and glasses (for liquids); NDNS: number of items (i.e. 2 fruits) and size of glass or ml (for liquids); IFS: frequency of consumption (i.e. >1 per day, 1 per day, =/≥3 per day, 1 or 2 per day, <1 per day, never)

7.3.3 The relevance of national datasets

Direct questions on the Healthy Start scheme were only identified in the National Diet and Nutrition Survey and Infant Feeding Survey 2010. However, the sample of recipients of Healthy Start vouchers is too small for analysis in the NDNS. The IFS 2010 is the single most promising dataset for analysing the demand for Healthy Start-supported products and for judging the impact of vouchers on this demand. It has: a sample of more than 10,000 women with infants (including 2201, 1885 and 1615 registered for Healthy Start in stages 1, 2 and 3 respectively); relevant definitions of eligible groups and an equivalent comparator group i.e. those who are eligible for Healthy Start but not registered on the scheme; direct questions on use of Healthy Start vouchers and for the full range of Healthy Start products (i.e. milk, fruit, vegetables and vitamins); and a set of socio-economic-demographic variables (see details in Appendix 56).

The identification of potentially eligible/ineligible Healthy Start recipients, using criteria set out by Dyson et al. (2007) in datasets without direct questions on the Healthy Start scheme or without sufficient data for a Healthy Start -based analysis was evaluated. This was designed to consider the possibility of forming both proxy Healthy Start groups and comparative groups. As the National Diet and Nutrition Survey only met one of the six Healthy Start eligibility criteria and had so few recipients of Healthy Start, it is not sufficiently useful. As the BHPS only asked questions of children between the ages of 11 and 14, this survey is not relevant. The most relevant national datasets reporting potential eligibility criteria is therefore the Scottish Health Survey. The Living Cost and Food Survey and Heath Survey for England use slightly different ages for grouping the population considered but otherwise the population groups are quite similar and therefore these should be considered further too.

Our search for the potential for data linkage showed that there is no possibility of linkage at an individual level between Healthy Start datasets and national datasets, as no individual-level identifiers exist in national datasets. However, area-level information such as postcodes could be made available following a successful special application process through the Secure Data Services of the ESDS. This is the case for two relevant national databases; HSE, and LCFS. Since postcode data are available in DB1, an area-level link could be achieved with these national datasets. If future IFS included identifiers then data linkage could occur in the future.

7.3.4 Commercially accessible data

Supermarkets (Tesco)

Data held by Tesco is in two main forms: individual till-receipts and till-receipts connected with their 'loyalty' scheme that allow tracking of item-level purchases to the 'loyalty' card users for all their purchases over time (up to 2 years). The latter is of more relevance because: purchase behaviour can be tracked over time; data collected at the point of application (e.g. age of household members, gender, postcode) could provide useful control variables in regression analyses as it would allow better isolation of the impact of Healthy Start vouchers; and links to individual stores can be made, including to local prices, which is important as prices have been shown to vary geographically, be volatile over time and influential in purchase patterns for fruit and vegetables (Ellis, 2009; Sturm & Datar, 2011; Todd et al. 2011).

Tesco's loyalty card has been in operation nationally since 1995 and has a membership of 14 million households (40% of UK households). It is the largest retail dataset in the UK. The loyalty card system in operation for Tesco is managed by Dunnhumby. Tesco owns a 51% share of Dunnhumby and sells both restricted sets of data as well as product analyses.

We have liaised with: a) the University of Kent, to discuss the possibility of jointly analysing part of the Dunnhumby dataset (with access to 1.2 million UK households) made available to the University of Kent as part of the Dunnhumby Academy of Consumer Research (set up in 2005) with or alongside information held on Healthy Start; and b) Dunnhumby, to discuss further extensions to data and analysis. Two broad possibilities exist; analysis at area level with University of Kent held data and analysis at an 'intervention' group level based on aggregating individuals. Appendix 61 gives an overview of variables in Dunnhumby dataset.

With the University of Kent, it would be possible to address the question of interest at an area level; to compare Healthy Start product purchases in areas with high concentration of Healthy Start recipients with areas with low concentration of Healthy Start recipients. This is a relatively straight forward analysis, which could link DH data with store level data (see steps set out in Box 1 below). The advantage of this is that it provides a basis for comparison for effectiveness and also covers different geographical areas. However, there are only limited opportunities for using control variables other than through postcodes and many factors may determine variation. Therefore it might be difficult to isolate an impact, but this is a point for research.

Box 1: Steps in area/store based analysis

Step 1: Merge DB1 and DB2

Step 2: Generate average vouchers received per locality e.g. ward level (using postcode data from DB1)

Step 3: Either select; a) only those who identify Tesco as the store in which vouchers are redeemed or b) establish whether SERCO can provide information on everyone who has *ever* used vouchers in Tesco* or c) the whole population, and assume that retailing patterns in Tesco match the whole sample

Step 4: Link postcodes to nearest Tesco store postcodes to create area level variables

Step 5: Generate average purchase per Healthy Start product (e.g. fruit and vegetables) per Tesco store (using Dunnhumby store-based data)

Step 6: Derive variables, using postcodes, that capture potential area level correlates of purchase of Healthy Start products

Step 7: Regress generated data from 'step 5' on that from 'step 2' controlling for derived variables from 'step 6'.

Step 8: Predict Healthy Start product purchases for all areas and estimate the relative difference (if any) between areas with high voucher concentration and those with lower concentration.

* This would seem to be possible as each voucher is linked back to the postcode of the retailer where the voucher has been redeemed. It is unclear whether SERCO hold this information or whether it is sent to SERCO

Data held by Dunnhumby could address the question of interest directly as they hold more information. As Healthy Start vouchers have unique identification codes as well as barcodes they can be linked to club card data and therefore a history of purchasing for an individual. The identification relies on an individual using a Healthy Start voucher at the same time as a club card. It would be possible, for example, for the purchasing behaviour (for each type of Healthy Start product supported, 'unhealthy' food, other groceries) to be reviewed for a maximum of 2 years and the incremental effect of the voucher assessed. Different analyses with different study designs could be conducted. For example, accounting for the % of vouchers used in Tesco (assuming an address based link to DH data is possible), the impact of vouchers can be compared: a) within groups of Healthy Start recipients before and after key changes (e.g. on joining a scheme, on leaving a scheme, moving from 2 to 1 vouchers at the end of year one); b) between groups, by matching the profiles (either in terms of the limited data collected on joining the club card, using post codes, or matching some part of a purchasing profile; or c) conducting the strongest comparison by combining the sample for both 'a' and 'b' together

Private sector consumer panels

Consumer panels are a form of survey that provide comparable information across participants. Continuous consumer purchasing panels are the most common form of consumer panels and are of particular potential relevance to this research. Consumers (on a household basis only) are invited to join 'panels' to provide detailed information on their weekly purchases using hand-held scanners at home. Consumers are rewarded for their information with points that can be exchanged for household goods that are not part of the goods evaluated, and entry into competitions for further prizes. Consumers can stay or exit from the panel for as long as they wish.

Data are aggregated anonymously and used, for example, to help manufacturers to gauge the popularity of their products. Data have also been used to support research (e.g. Griffith & O'Connell, 2009; Harding et al. 2012). The two leading market research firms in the UK are Taylor Nelson Sofres (TNS, now known as Kantar) and AN Nielsen (Homescan) (Stone & Desmond, 2007).

The consumer panels are maintained as broadly representative of the demographics of the general population using quota sampling methods. However, some have suggested these panels may be more price sensitive than the general population (Lusk & Brooks, 2011).

The Kantar (formerly called TNS) world panel (including UK panel)

This records fast moving consumer goods (food and groceries) and, in principle, purchases from all stores (supermarkets, local corner and specialist stores, internet purchases, chemists and so on) (Leicester & Oldfield, 2009). Until 2006, the UK panel included around 15,000 households at any one time and coverage also included non-barcoded items (e.g. fruit and vegetables) as households were issued with a booklet containing barcodes for various non-barcoded products which they scanned) and recorded details of the purchase. After 2006, the sample size of the UK panel increased to around 25,000 households, new scanner technology was introduced, some were no longer asked to collect non-barcoded products; and the information on the nutritional content of the items purchased in each shopping trip (e.g. calories, fat, sugar, salt, carbohydrates) as well as self-reported body mass index of the main shopper was added to data collected. Leicester (2012) suggests the Kantar world panel covers around 18% of total household spending.

Information recorded at each point includes details of the product and its characteristics and date of purchase. Information on the price paid is recorded separately by Kantar using mailed till receipts (prices are taken from centralised databases of store- and product-specific prices, or otherwise imputed if these are missing) (Leicester, 2012). The data also record any promotional deal attached to a purchase. Information on the store visited is recorded by the participants. Leicester and Oldfield (2009) also indicate that “relatively detailed information on household demographics are recorded and re-assessed approximately every nine months though information ... such as income and education data, are not routinely recorded (income data has been collected for a limited sub-sample of households since 2006)”. As a typical week includes between 600,000 and one million recorded purchases (Leicester & Oldfield, 2009), the dataset is huge. Leicester and Oldfield (2009) found that average spending is lower in the scanner data. However, in contrast to the Zhen et al. (2009) study, they found little difference across commodities in these expenditure gaps and thus very similar patterns of spending in the two surveys.

Of the Kantar world panel registered in the UK, it was estimated that only around 50 people would be receiving Healthy Start vouchers (personal communication, Kantar world panel). However, while the use of Healthy Start vouchers is scanned it is not currently being used and therefore no codes had been assigned and no analysis is currently possible (personal communication, Kantar World Panel). If worthwhile, coding could be set up but at an, as yet unrevealed, cost.

The Homescan Panel

Homescan provides data on groceries bought by people over the age of 18 from a wide variety of stores. Each participating household is asked to scan all products after returning from shopping trips and enter the quantity of each item, whether the item was purchased at the regular or promotional (“deal”) price, and the coupon amount (if used) associated with this purchase (Einav et al. 2010). Nielsen then matches the barcode with detailed product/purchaser characteristics²⁴ and, unlike the Kantar world panel, price data are imputed as till receipts are not collected.

²⁴The range of data collated for each shopping trip includes: date of purchase; age and sex of primary and secondary shopper; store name; usage of frequent shopper cards; complete item description through universal product code (UPC) dictionary; for each UPC, the number of units, price paid, and deals used (manufacturer coupon, store coupon, store sale, or other); source of the coupon – at home, at the register, elsewhere in the

The Homescan panel data has been critically reviewed by Leicester (2012), who pointed to the work of Einav et al. (2008) and Duly et al. (2003), showing that prices recorded by Homescan only match loyalty card data in 50% of occasions (although corrections could be made (Einav et al. 2010), and that around 45% of expenditure data was missing. Particularly worrying to the aims of this work is that Homescan data was indicated to under-report purchase of fruit and vegetables substantially (Zhen et al. 2009).

The Homescan sample in the UK is around 15,000 and unfortunately Healthy Start vouchers are not specifically recorded (Homescan, personal communication) and, as no till receipt data is collected, it is not scanned either. As with Kantor, the size of sample is likely to be very small indeed.

Utility of commercially available data

Data from the Homescan and Kantor samples are not available in a workable form at present to help evaluation of Healthy Start. The Kantor sample offers more opportunity as Healthy Start voucher data is at least scanned, although not coded and the total sample is larger. The Kantor sample also appears to offer a better quality opportunity as prices are taken from mailed receipts, which allows local offers to be accounted for. Funding the coding of Healthy Start vouchers would allow a sample of all grocery purchases to be studied for up to 100 Healthy Start participants each year, which is a small sample size although the number of observations per participant would be large over the course of a year and cover all potential locations for redemption of vouchers. The importance of this coverage could potentially be determined if SERCO could indicate the full range of supermarkets accessed to redeem vouchers per person rather than only the most common retailer.

The Dunnhumby dataset covers the largest sub-group of the population and refers to the store which is the most commonly stated source for redeeming Healthy Start vouchers. A postcode based analysis comparing voucher use rates with purchase of products by Healthy Start could be carried out fairly easily with a range of control variables accounted for. More direct but more expensive analysis based on spending of vouchers in Tesco could account for the incremental impact of vouchers with a limited set of individually based control variables taken from club card data and a more extensive set at a postcode level. Matching of individuals and comparison overtime would provide the most robust analysis.

7.4 Discussion of the potential for economic analysis using existing datasets

To address the range of policy questions identified, four types of dependent variables are required: consumption supported by Healthy Start; consumption not supported by Healthy Start, overall food consumption, use of Healthy Start vouchers. This is premised on the use of regression analyses to explain the association between what the DH wants to change (e.g. consumption of vegetables) and how it wants to induce change (e.g. use of Healthy Start vouchers). For an accurate estimation of this relationship, other potentially important variables that might be associated with change need to be accounted and 'controlled for'. These 'control' variables include economic variables such as income and price but also a range of socio-economic and demographic variables (e.g. composition of household, location). The 'control' variables could include presence of other relevant interventions, if these vary across the population of interest and data were available. Not accounting for these control variables would lead to biased estimates of Healthy Start -related variables (e.g. participation or not).

store; total shopping trip purchase amount, method of payment – cash, cheque, credit card, or debit card (Greenberg, 2006).

Table 32 below shows, however, that a range of potential specifications for each dependent variable exists and that these vary by the focus of Healthy Start product. For example, demand for vegetables could include consumption directly (e.g. grams) or be 'proxied' by expenditure (e.g. spending per household member on vegetables each week). Specifications could also either simply be in terms of eaten/bought or not (a binary variable) or represented in terms of quantities eaten or bought. Finally, existing data sets could provide spending for products as a % of household food budget or, in the case of fruit and vegetables combined, whether the recommended number of portions are eaten (in a given time period).

The main explanatory variable of interest is participation in the Healthy Start scheme. Table 32 also shows the range of ways in which participation in Healthy Start can be specified using current data. This includes variations in terms of eligibility, registration, use of vouchers and total value of vouchers received.

Two key economic variables for any demand equation are represented next in Table 32; income and price of product and some specifications for income are listed. While the price variable appears simple, it is challenging to estimate in practice and an indication of part of the detail required for this is provided in Appendix 57.

The systematic literature review indicated a wide range of potentially important control variables (see Table 32). However, differences in US market conditions, US populations as well as the coverage rate and content of both WIC and Food Stamps means there are real challenges in transferring results from the US to derive suitable hypothesis tests for evaluating Healthy Start in the UK today. Therefore later tables summarise the full range of control variables in UK data sets available for examination and hypothesis generation.

The systematic review of economic studies suggests that the demand for products (both Healthy Start and non-Healthy Start) could be different for different population groups such as eligible participants, eligible non-participants, and ineligible people. It is this difference that will allow measurement of the impact of Healthy Start scheme on demand but appropriate comparison groups must be identified corresponding to policy questions. For example: (a) comparing consumption patterns in eligible participants and eligible non-participants is appropriate if the policy question is whether receipt of Healthy Start vouchers in the Healthy Start -target population is associated with increase/decrease consumption of certain products; and (b) comparing consumption patterns among voucher users and voucher non-users (both eligible) is appropriate if the policy question is to find out the true effect of the Healthy Start voucher scheme.

Table 32: Alternative specification of variables

Variables	Alternative specifications
<i>Healthy Start products</i>	The choice of Healthy Start products could be operationalized either as individual products (e.g. demand for vegetables) or combination of products (e.g. demand for fruit and vegetables).
<i>Fruit; Vegetables</i>	<ol style="list-style-type: none"> 1. Consumed or not within X per Y 2. Purchased or not within X per Y 3. Quantity consumed within X per Y 4. Quantity bought within X per Y 5. Total expenditure within X per Y 6. % share of food expenditure on product within X per Y 7. Does quantity consumed of fruit and vegetables within X per Y meet the recommended portion

Variables	Alternative specifications
<i>Milk</i>	Same as fruit and vegetables, with the exclusion of '7'
<i>Infant formula</i>	Same as fruit and vegetables, with the exclusion of '7'
<i>Vitamins</i>	Same as fruit and vegetables, with the exclusion of '7'
<i>Breastfeeding</i>	<ol style="list-style-type: none"> 1. Breastfeeding (or not) at initiation, 2 weeks, 6 weeks etc. 2. Partial breastfeeding (or not) at initiation, 2 weeks, 6 weeks etc. 3. Exclusive breastfeeding (or not) at initiation, 2 weeks, 6 weeks etc.
<i>Non- Healthy Start products (using exemplars)</i>	<ol style="list-style-type: none"> 1. Expenditure on poultry within X per Y 2. Expenditure on cakes within X per Y
<i>Food</i>	Expenditure on food within X per Y
<i>Participation in Healthy Start scheme</i>	<ol style="list-style-type: none"> 1. Eligible (or not) for Healthy Start within X per potential applicant (parent/carer) 2. Given eligibility, registered (or not) for Healthy Start within X per potential applicant (parent/carer) 3. Healthy Start voucher use rate within X per applicant (parent/carer) or beneficiary 4. Total value of vouchers received within X per applicant (parent/carer)
<i>Price</i>	<ol style="list-style-type: none"> 1. Price²⁵ of product in question within X
<i>Income</i> ²⁶	<ol style="list-style-type: none"> 1. Personal income within X per Y 2. Household income within X per Y 3. Equivalised household income within X per Y
<i>Other control variables</i>	<p>Based on the findings of the economic presented earlier, these include age, gender, nationality, urbanisation status, education, tenure status, family composition, marital status, occupation and location.</p> <p>Other variables included in the datasets could also qualify as part of a hypothesis generating investigation</p>

*Where X=reference period of time; Y=beneficiary of Healthy Start scheme; applicant of Healthy Start scheme; any child(ren) residing in household registered on Healthy Start scheme; parent of beneficiary of Healthy Start scheme

Following potential specifications of a range of relevant dependent and explanatory variables for potential regression models, the five databases previously identified as potentially relevant (Infant Feeding Survey 2010, Living Costs and Food Survey 2008, Health Survey for England 2008, Healthy Start applicant data (DB1), Dunnhumby data) are appraised to identify the exact questions asked and therefore the potential to address the policy questions identified. Appendices 56-58, 60 and 61 show which of the requisite variables are available for each dataset and how they are specified as survey questions. This gives an indication of how differently specified the variable of change is across surveys. In terms of vegetables, for example, the IFS 2010 asks questions only in terms of whether a baby has ever consumed vegetables at two time points in the first year and the frequency of times vegetables were eaten at the end of the baby's first year. By contrast, the LCFS (2008) asks about weekly household expenditure for; different types of vegetables (leaf and stem vegetables (fresh or chilled), cabbages (fresh or chilled), vegetables grown for their fruit (fresh, chilled or frozen), dried vegetables, other preserved or processed vegetables)) and for adults and children (0-16) separately.

Table 33 sets out the link between policy questions and the related research question that each database could contribute to addressing. It indicates how the dependent and explanatory variables would be specified differently across databases for each of the Healthy Start products supported.

²⁵ Price could be ex post (price reference person bought the product for) or ex ante(facing market price)

²⁶ This could be presented in bands or as continuous data

For example, the first policy question specified is whether participation in Healthy Start is associated with increase in demand for fruit. Five databases are indicated as able to address the demand for fruit; IFS 2010, LCFS 2008, HSE 2008, and Dunnhumby as no details are available in the Healthy Start applicant data (DB1). However, it is important to note how differently the actual questions could be specified in practice, for example, 'Does Healthy Start increase the % of children eating fruit ever in their first year?' (one option from the IFS 2010) versus 'Does Healthy Start increase % of food expenditure on fruit?' (one option from the LCFS 2008). These and other differences occur throughout Table 33 for each product supported by Healthy Start as well as for breastfeeding.

Table 33: Potential approaches to answering the policy questions

Policy question	Database	Potential relevant research question	Participation in Healthy Start scheme						Specification of dependent variable						HH with resident (s) being:			Income	Price of Healthy Start products
			Eligible or not	Registered or not	Dyson criteria	Predictive model	Use rate of vouchers	Total value of vouchers used	Consumed or not	Quantity consumed	Expenditure	% share food	Frequency	Portions per day	0-1 year	0-3 years	pregnant		
<i>Is participation in Healthy Start associated with increase in demand for fruit?</i>	IFS 2010	Does Healthy Start increase frequency of consumption of fruit per day at the end of first year of a child? (Stage 3 of IFS)	✓	✓									✓		✓				
		Does Healthy Start increase the % of children eating fruit ever in their first year?	✓	✓					✓						✓				
	LCFS 2008	Does Healthy Start increase weekly expenditure on fruit?			✓	✓					✓					✓		✓	✓
		Does Healthy Start increase % of food expenditure on fruit?			✓	✓						✓				✓		✓	✓
	HSE 2008	Does Healthy Start increase consumption of total portion of fruit?			✓	✓								✓		✓		✓	
		Does Healthy Start increase consumption of quantity of fruit?			✓	✓				✓						✓		✓	
		Does Healthy Start increase % of people eating fruit?			✓	✓			✓							✓		✓	
	Dhmby	Does Healthy Start increase weekly expenditure on fruit?		✓			✓	✓			✓	✓	✓		✓	✓			✓
		Does Healthy Start increase % of food expenditure on fruit?		✓			✓	✓			✓	✓	✓		✓	✓			✓
<i>Is participation in Healthy Start associated with increase in demand for vegetables?</i>	IFS 2010	Does Healthy Start increase frequency of consumption of vegetables per day at the end of first year of a child? (Stage 3 of IFS)	✓	✓									✓		✓				
		Does Healthy Start increase the % of children eating fruit ever in their first year?	✓	✓					✓						✓				

Policy question	Database	Potential relevant research question	Participation in Healthy Start scheme						Specification of dependent variable						HH with resident (s) being:			Income	Price of Healthy Start products
			Eligible or not	Registered or not	Dyson criteria	Predictive model	Use rate of vouchers	Total value of vouchers used	Consumed or not	Quantity consumed	Expenditure	% share food	Frequency	Portions per day	0-1 year	0-3years	pregnant		
	LCFS 2008	Does Healthy Start increase weekly expenditure on vegetables?			✓	✓					✓					✓		✓	✓
		Does Healthy Start increase % of food expenditure on vegetables?			✓	✓						✓				✓		✓	✓
	HSE 2008	Does Healthy Start increase consumption of total portion of vegetables t?			✓	✓								✓		✓		✓	
		Does Healthy Start increase consumption of quantity of vegetables?			✓	✓				✓						✓		✓	
		Does Healthy Start increase % of people eating vegetables?			✓	✓			✓							✓		✓	
	Dhmby	Does Healthy Start increase weekly expenditure on vegetables?		✓			✓	✓			✓	✓	✓		✓	✓			✓
		Does Healthy Start increase % of food expenditure on vegetables?		✓			✓	✓			✓	✓	✓		✓	✓			✓
<i>Is participation in Healthy Start associated with increase in demand for milk?</i>	IFS 2010	Does Healthy Start increase frequency of consumption of cows' milk per week at the end of first year of a child? (Stage 3 of IFS)	✓	✓									✓		✓				
		Does Healthy Start increase the % of children consuming cows' milk ever in their first year?	✓	✓					✓						✓				
	LCFS 2008	Does Healthy Start increase weekly expenditure on milk?			✓	✓					✓					✓		✓	✓
		Does Healthy Start increase % of food expenditure on milk?			✓	✓						✓				✓		✓	✓
	HSE 2008	Does Healthy Start increase consumption of milk per day?			✓	✓				✓						✓		✓	

Policy question	Database	Potential relevant research question	Participation in Healthy Start scheme						Specification of dependent variable						HH with resident (s) being:			Income	Price of Healthy Start products
			Eligible or not	Registered or not	Dyson criteria	Predictive model	Use rate of vouchers	Total value of vouchers used	Consumed or not	Quantity consumed	Expenditure	% share food	Frequency	Portions per day	0-1 year	0-3 years	pregnant		
	Dhmby	Does Healthy Start increase weekly expenditure on milk		✓			✓	✓			✓	✓	✓		✓	✓			✓
		Does Healthy Start increase % of food expenditure on milk?		✓			✓	✓			✓	✓	✓		✓	✓			✓
<i>Is participation in Healthy Start associated with increase in demand for infant formula?</i>	IFS 2010	Does Healthy Start increase the % of children consuming formula ever in their first year?	✓	✓					✓						✓				
		Does Healthy Start increase frequency of consumption of formula per week in the first year of a child? (Stages 2&3 of IFS)	✓	✓									✓		✓				
		Does Healthy Start increase frequency of consumption of formula per day in the first year of a child?	✓	✓									✓		✓				
	Dhmby	Does Healthy Start increase weekly expenditure on formula?		✓			✓	✓			✓	✓	✓		✓	✓			✓
		Does Healthy Start increase % of food expenditure on formula?		✓			✓	✓			✓	✓	✓		✓	✓			✓
<i>Is participation in Healthy Start associated with increase in demand for vitamins?</i>	IFS 2010	Does Healthy Start increase frequency of intake of vitamins by children in their first year?	✓	✓					✓						✓				
	Dhmby	Does Healthy Start increase weekly expenditure on formula?		✓			✓	✓			✓	✓	✓		✓	✓			✓
		Does Healthy Start increase % of food expenditure on formula?		✓			✓	✓			✓	✓	✓		✓	✓			✓
<i>Is participation in Healthy Start associated with increase in demand for</i>	IFS 2010	Does Healthy Start increase the % of children who are exclusively breastfed per week in their first year?	✓	✓					✓						✓				
		Does Healthy Start increase the % of children consuming breast milk ever in their first year?	✓	✓					✓						✓				

Policy question	Database	Potential relevant research question	Participation in Healthy Start scheme						Specification of dependent variable						HH with resident (s) being:			Income	Price of Healthy Start products
			Eligible or not	Registered or not	Dyson criteria	Predictive model	Use rate of vouchers	Total value of vouchers used	Consumed or not	Quantity consumed	Expenditure	% share food	Frequency	Portions per day	0-1 year	0-3years	pregnant		
breastfeeding?		Does Healthy Start increase frequency of consumption of breast milk per week in the first year of a child?	✓	✓									✓		✓				
<i>Is participation in Healthy Start associated with increase in demand for products not supported by Healthy Start?</i>	LCFS 2008	Does Healthy Start increase weekly expenditure on 'healthy' non- Healthy Start TART products e.g. poultry?			✓	✓					✓					✓		✓	✓
		Does Healthy Start increase weekly expenditure on 'unhealthy' non-Healthy Start products e.g. cakes and puddings?			✓	✓					✓					✓		✓	✓
	Dhmbly	Does Healthy Start increase weekly expenditure on 'healthy' non-Healthy Start products e.g. poultry?		✓			✓	✓			✓	✓	✓		✓	✓			✓
		Does Healthy Start increase weekly expenditure on 'unhealthy' non-Healthy Start products e.g. cakes and puddings?		✓			✓	✓			✓	✓	✓		✓	✓			✓
<i>Is participation in Healthy Start associated with increase in demand for food generally?</i>	LCFS 2008	Does Healthy Start increase weekly expenditure on food generally?			✓	✓					✓					✓		✓	✓
	Dhmbly	Does Healthy Start increase weekly expenditure on food generally?		✓			✓	✓			✓	✓	✓		✓	✓			✓
<i>What is the impact of change in value of Healthy Start voucher on the demand for HEALTHY START products?</i>	DB1 (& others) *	Is increase in Healthy Start voucher value associated with increase in demand for (.....each of the Healthy Start supported products)?	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓

Policy question	Database	Potential relevant research question	Participation in Healthy Start scheme						Specification of dependent variable						HH with resident (s) being:			Income	Price of Healthy Start products
			Eligible or not	Registered or not	Dyson criteria	Predictive model	Use rate of vouchers	Total value of vouchers used	Consumed or not	Quantity consumed	Expenditure	% share food	Frequency	Portions per day	0-1 year	0-3 years	pregnant		
	Dhmb	Is increase in Healthy Start voucher value associated with increase in demand for (.....each of the Healthy Start supported products)?		✓			✓	✓			✓	✓	✓		✓	✓			✓
What is the predicted impact of changing the eligibility criteria at population level?	IFS 2010	How would consumption of vegetables/fruit/other alter if one of the benefit criteria was not required?	✓	✓					✓						✓				
	LCFS 2008	How would consumption of vegetables/fruit/other alter if one or more of the Dyson criteria was not required?			✓	✓					✓					✓		✓	✓
	HSE 2008	How would consumption of vegetables/fruit/other alter if one or more of the Dyson criteria was not required?			✓	✓			✓							✓		✓	
	Dhmb	How would consumption of vegetables/fruit/other alter if one or more of the Dyson criteria was not required?		✓			✓	✓			✓	✓	✓		✓	✓			✓
What is the most cost-effective way of increasing the use of vouchers among Healthy Start participants?	DB1	How is the use rate of vouchers associated with individuals or household characteristics?	✓ +				✓	✓							✓	✓	✓		
	IFS	How is the proportion of people who used vouchers associated with individuals' or households' characteristics?		✓			✓								✓				

*This question requires predicting for: ((a) the participation in Healthy Start scheme (b) the change in value of voucher value) from DB1 into the other datasets named above. Whilst the prediction for 'b' applies to all the other datasets, that of 'a' excludes IFS 2010 because it already has data on Healthy Start participation. The choice of which dataset one predicts from DB1 into; depends on which Healthy Start product is of interest. For example, if the purpose is to find the impact of change in value of voucher on demand for breastfeeding, then we will predict 'b' from DB1 into IFS 2010.

+ Eligibility is only distinguished among those who consider themselves potentially eligible and who also complete an application form for Healthy Start

Predicting the impact of changing the eligibility criteria at population level could be assessed by considering, for example, the impact of changing the age limit of 4 years or of altering benefit criteria. Table 33 shows that changing criteria are the easiest to examine in data sets based on the Dyson et al. (2007) criteria and by age of child. One policy question can only be answered partly using the datasets reviewed; the most cost-effective method of increasing voucher use among beneficiaries as this data will only support explaining which characteristics are associated with lower use rates and therefore the target for future action. The costs and effects of specific forms of action would still be needed.

Table 33 shows first (column 1) that the demand for vegetables, fruit and milk can be studied using four databases. However, the link between Healthy Start and vitamins, infant formula or breastfeeding is only possible with the IFS 2010. The study of indirect impacts on spending outside of Healthy Start products and food is only possible with the LCFS and Dunnhumby datasets. However, identifying recipients of Healthy Start vouchers may be less accurate with the former dataset as it would rely on estimation whereas the latter would use evidence of actual vouchers redeemed. Finally, while three databases can distinguish those who do and don't use vouchers (DB1, IFS and Dunnhumby), only one data base contains information on the total value of all vouchers (DB 1) and another on the number/value redeemed at Tesco.

Table 33 also confirms that only the IFS and Dunnhumby data sets are definitively able to distinguish women who receive vouchers for Healthy Start from others in the general population. The IFS also identifies, of those who have recently given birth, how many consider themselves to fulfil the eligibility criteria (which could mirror the difference between applicants and beneficiaries in DB1). The Dunnhumby data only identifies those using Healthy Start vouchers at Tesco. Table 33 shows that the Dyson criteria, which facilitate an approximation of eligible and ineligible respondents, and a predictive model would be the only routes currently available for distinguishing those households in receipt of Healthy Start or not for the LCFS, and HSE surveys. DB1 will allow identification of voucher users and non-users given receipt of vouchers.

Table 33 shows that self-reported consumption/expenditure data are available from three sources; the LCFS, HSE, and IFS, although as the latter two only provide binary data (in some cases) the resultant regression would be limited to the proportion of a population consuming a (non) Healthy Start product or not. Only the LCFS and Dunnhumby report expenditure data and Dunnhumby is the only one based on observed rather than self-reported data. The number of portions of fruit and vegetables can be considered with the HSE and hence provide a link to the impact of Healthy Start on the recommended levels for intake. However, as neither of these accounts for key economic variables estimation of the impact of Healthy Start is likely to be biased

The patterning of responses for whether household composition is relevant to the Healthy Start population is important. The IFS focusses on women with a child less than 1 year of age, some of whom may have other children. All other databases incorporate women with children of any age and therefore are more representative of the general population and of the population potentially able to benefit from the Healthy Start scheme. Other than the Healthy Start database DB1, none are able to identify households with pregnant women.

Of the key economic variables, Table 33 shows that neither the IFS nor DB1 contains price or income data and that only the LCFS contains both. While, to some extent other control variables (such as occupation) could be used as a proxy for income, relevant price data are more challenging to approximate, although it can be done. If future IFS included identifiers such as postcode, then data linkage could occur. As this is currently one of the best sources of data for Healthy Start, we would recommend the DH request this addition to this survey in the future. No dataset can fully answer the policy question of main or subsidiary interest as none is able to compare a fully representative

sample of Healthy Start recipients with appropriately matched non-recipients to ascertain a reliable and unbiased estimate of the impact on consumption of, for example, fruit and vegetables. However, several datasets could contribute to addressing the policy questions and, if results were to be taken as a whole to help mitigate some of the disadvantages of each dataset, this might provide a useful evidence base for future decisions.

The identification of Healthy Start recipients and a relevant comparison group to enable an assessment of the impact of Healthy Start is essential. Only two datasets can support a direct comparison independently; IFS 2010 and Dunnhumby.

The IFS 2010 is particularly important as it is the only data source that can measure impact across the whole range of products/services supported by Healthy Start i.e. consumption of fruit, vegetables, vitamins, milk as well as breastfeeding. It is also able to do this over time (at 3 time points) for the first year of a child's life and directly for the child (beneficiary) to whom Healthy Start is intended to benefit. However, there are number of disadvantages of this dataset for estimating demand;

1. it only draws on women who have had a baby in the last year and therefore under-represents recipients with children over the age of 1.
2. all the data is based on self-report
3. where demand for Healthy Start - products is specified as expenditure, there is no indication of the amount spent
4. there are three problems specific to estimating impact on demand for Healthy Start supported products; data on neither price nor income nor demand for non-Healthy Start products is available. Therefore the impact of Healthy Start on purchasing behaviour will not be fully represented and demand estimation will be biased.
5. no quantity data other than portions are available.

Despite the disadvantages listed, the IFS would lend itself to addressing the questions of whether there is a significant difference in the frequency of consumption of, or proportions of babies who have, fruit, vegetables, vitamins²⁷, cows' milk, infant formula, exclusive breastfeeding or any breastfeeding in the first week in: a) eligible recipients and (self-determined) eligible non-recipients, depending on sample size; and/or b) recipients compared with non-recipients within specified income quintiles, controlling for an appropriate range of variables.

Further primary research using the IFS would help demand estimation. First, new questions on total food expenditure, prices paid, - and a larger set of control variables including income could be added. These could potentially be the focus of a specific follow-up data collection exercise to IFS 2010 and/or included in the next IFS survey. Secondly, repeated annual data collection (ideally with the additional variables just recommended) could follow-up the group of participating women and their comparison group over time until the birth cohort reached 5. This would identify comparison groups for Healthy Start at end of year 2 and 3 and 4 to see continuation and drop off for this cohort over the whole time period of eligibility, collecting data for. It would also establish the correlation between expectation and reality of becoming a beneficiary.

The Dunnhumby dataset has the potential to compare expenditure in Tesco over time for fruit, vegetables, milk, formula and vitamins among Healthy Start recipients (including when price or products covered have changed) with a comparison group. Three strengths are: the use of observed rather than self-reported data; the possibility of linking this to external price data to control for a key component of demand and help isolate the true impact of Healthy Start vouchers and; the ability to account for a broader range of food expenditures. The challenges of this data are: the focus on only

²⁷ Only frequency for vitamins

one store chain; the assumption that expenditure is directly related to consumption of intended recipients; data is not freely available as it is owned by a private company; and the limited number of additional control variables at an individual level.

The two freely available national datasets (LCFS 2008; HSE 2008) of relevance all face the challenge of having no direct method of identifying participants in the Healthy Start scheme. Of these, the LCFS is the only one that covers goods related to Healthy Start and beyond as well as including income and price data. This makes it far more likely to provide reliable and unbiased estimates of demand, although it is based on self-reported expenditure data rather than observed consumption. Whilst the HSE uses consumption based questions, they are self-reported and do not focus on consumption beyond a very limited number of products. Therefore, the summary of advantages and disadvantages of dataset presented in Table 34 is limited to LCFS as the proposed national dataset of choice for further analysis of the impact of Healthy Start on the demand for Healthy Start products and food more generally.

Box 2 sets out three methods that could be used to categorise the LCFS, and other national data sets, into groups of: (a) those who are likely to be eligible and receive Healthy Start vouchers (intervention group- eligible participants); and (b) those who are likely to be eligible but not receive Healthy Start vouchers (comparator group- eligible non-participants). The remainder of the sample, classified as 'ineligible' for Healthy Start' could be dropped from analysis.

Box 2: Three methods for predicting eligible participants and non-participants of Healthy Start

Method 1: Predictive models using Infant Feeding Survey 2010

The Infant Feeding Survey asks respondents the following questions: "Based on the list above [show card], are you eligible for the Healthy Start scheme? (Yes; No; Don't know) and "Are you on the Healthy Start scheme? (Yes/No)". These questions could serve as dependant variables of a predictive model estimating the probability that a respondent (mother of a newly born baby) is eligible or a Healthy Start participant, contingent upon a number of characteristics (a series of control variables in the database, e.g. mother's age, education, occupation). Once the probability that a respondent is a Healthy Start participant is estimated, it can be applied to the LCFS. The population need to be comparable too, e.g. if this model is to be applied to LCFS, only those households in which a baby <1 year old lives can be included in LCFS-based analysis. The steps required would include:

1. Specify a bivariate model by regressing "Healthy Start -Yes/No" variable on a series of control variables deemed to have explanatory relationship with the dependent variable (based on literature, theory or intuition). Control variables need to be common to both databases and specified exactly in both databases:
 - *For example, Registered on Healthy Start(1= Yes; 0=No) to indicate the intervention group defined as "eligible participants". The control group would be "eligible non-participants". Develop a logit or probit model in IFS using the following variables common to LCFS and IFS: age of mother/respondent, ethnicity, educational qualifications, family composition, marital status, and occupation. Appendix 63 exemplifies where re-calibration of variables would be needed between the IFS and LCFS.*
2. Estimate the model and perform rigorous diagnostic tests to make sure that the model fits the data and has a reasonable predictive ability given selected control variables. Drop/re-specify variables if needed. Assess the loss of predictive ability if one or more variables from the model are dropped. Select the best model.
3. Predict in the new database the probability that a respondent is a Healthy Start participant based on the final model determined in Step 2. Use this model to predict the probability that a respondent would be on Healthy Start on LCFS data, making sure that appropriate

population (<1 year) is selected. Apply decision rule (e.g. =1 if prob \geq 0.50) and create a new variable in LCFS indicating whether the respondent is on Healthy Start or not.

4. Apply a decision rule (e.g. predicted probability \geq 0.5) to identify a Healthy Start participant in the new database. Comment on the implications for accuracy in prediction using information obtained in Step 2. Estimate demand for products in LCFS with this Healthy Start participation as a key independent variable.

Method 2: Combination of eligibility criteria using Dyson et al. (2007) and predictive modelling based on IFS 2010

Dyson et al. (2007) provide the following criteria to indicate eligibility for Healthy Start:

- Pregnant women under age 18
- Pregnant women aged 18+ AND receiving income support
- Pregnant women aged 18+ AND receiving income-based job-seeker's allowance
- Families with children <4 years of age AND receiving income support
- Families with children <4 years of age AND receiving income-based job-seeker's allowance
- Families with children <4 years of age AND receiving child tax credit AND with Annual Income <£14,155 (£16,190 in 2011-12)

A respondent could be assumed to be eligible for Healthy Start recipient if falling in one or more of the above categories. The disadvantage of Dyson et al. method on its own is that it allows us to identify eligible and ineligible respondents in the national databases but not those who receive the Healthy Start vouchers. Once the Dyson et al. criteria are applied, Method 1 could be used additionally to identify the Healthy Start participants and non-participants. The steps required would include:

1. Create a variable "eligible" in the national dataset and assign 1 if the respondent meets one or more of the above criteria; 0 otherwise
2. Apply IFS predictive model (method 1) on the eligible sample (eligible=1 in Step 1). Note that the correct IFS model to use here is the one that estimates the probability that a respondent is a Healthy Start participant, given eligibility.

Method 3: Combination of Dyson et al. (2007) eligibility criteria and predictive modelling based on Vertex Beneficiary dataset

This is the same as Method 2 but the predictive model to identify Healthy Start participants is taken from DB1. The advantage of this method is that it allows us to identify those Healthy Start participants who actually use their vouchers rather than just being eligible and not using vouchers (estimated to be 20% per year). Not accounting for likelihood of using vouchers would dissipate any true effect of the Healthy Start voucher scheme. The steps required would include:

1. Create a variable "eligible" in the national dataset and assign 1 if the respondent meets one or more of the Dyson et al. criteria (see method 2 above); 0 otherwise
2. Specify a bivariate model (logit or probit) by regressing "Voucher used (Yes/No)" variable from the Vertex database on a series of control variables (e.g. age of mother, number of children, etc.) deemed to have explanatory relationship with the dependent variable (based on literature, theory or intuition)
3. Perform rigorous tests to make sure that the model fits the data and has a reasonable predictive ability given selected control variables. Assess the loss of predictive ability if one or more variables from the model are dropped. This is important because the final model should have only those control variables which exist in other databases.
4. Predict for the respondents with "eligible"=1 in Step 1, based on the final model determined in Step 3.

5. Apply a decision rule (e.g. predicted probability ≥ 0.5) to identify a Healthy Start voucher users in the new database. Comment on the implications for accuracy in prediction using information obtained in Step 2.

The disadvantage of the three methods set out in Box 2, like any modelling exercise, is that the accuracy of prediction will depend on how best the model is specified, how best the model fits the data, and whether there are several control variables common in both databases that are also commonly specified. However, using three methods allows for a sensitivity analysis of prediction methods. However, if Healthy Start vouchers could be identified as a source of income in the LCFS and other national surveys, these prediction methods would not be needed.

Table 34 shows that DB1 offers the only opportunity to address the issue of factors associated with voucher use, the sixth policy question. While this could not translate into a suggestion of *how* to increase vouchers use or the cost/effects of alternative methods of doing so, it could provide some indication of which groups to target with an intervention.

Table 34: Pros and cons of the four best datasets in existence for addressing policy questions of interest

Database	Research questions	Advantages	Disadvantages
IFS*	<ul style="list-style-type: none"> Does Healthy Start increase frequency of consumption of fruit / veg / at the end of first year of a child? (Stage 3 of IFS) Does Healthy Start increase the % of children consuming fruit / veg / milk ever in their first year? Does Healthy Start increase frequency of consumption of cows' milk per week at the end of first year of a child? (Stage 3 of IFS) Does Healthy Start increase the % of children consuming formula ever in their first year? Does Healthy Start increase frequency of consumption of formula per day / week in the first year of a child? (Stages 2&3 of IFS) Does Healthy Start increase frequency of intake of vitamins by children in their first 	<ul style="list-style-type: none"> Able to identify largest population of Healthy Start recipients with matched comparison group Can include all Healthy Start products as well as breastfeeding Longitudinal design that could allow investigations into decisions overtime 	<ul style="list-style-type: none"> Not representative of whole Healthy Start population as all women have a child <1yr. No price or income data therefore and demand analysis likely to produce biased estimates of demand and impact of Healthy Start No quantity data other than portions per day No non- Healthy Start products Self-reported data on Healthy Start participation, particularly on eligibility, which could be prone to measurement errors - not all those who consider themselves eligible are, as shown in the DB1 data.

Database	Research questions	Advantages	Disadvantages
	year?		
LCFS	<ul style="list-style-type: none"> • Does Healthy Start increase weekly expenditure on fruit / veg / milk? • Does Healthy Start increase % of food expenditure on fruit / veg / milk? • Does Healthy Start increase weekly expenditure on 'healthy' non- Healthy Start products e.g. poultry? • Does Healthy Start increase weekly expenditure on 'unhealthy' non- Healthy Start products e.g. cakes and puddings? • Does Healthy Start increase weekly expenditure on food generally? 	<ul style="list-style-type: none"> • Has better specified economic model as has both price and income data • Can focus on population under 4 • Can consider milk, veg, fruit and combinations of these • Can account for non-Healthy Start products • Publicly available data • Can support more sophisticated demand analysis e.g. AIDS 	<ul style="list-style-type: none"> • Use expenditure rather than consumption data and there is likely to be food wastage (especially for fresh fruit and veg) • Healthy Start beneficiaries is modelled or assumed rather than known • Self-recorded diary data
DB1	<ul style="list-style-type: none"> • How is the use rate of vouchers associated with individuals or household characteristics? • Is increase in Healthy Start voucher value associated with increase in demand (.....each of the Healthy Start supported products) among those who receive and use their vouchers? 	<ul style="list-style-type: none"> • Only data set that refers to use rate of vouchers • Postcode data available • Some access to socio-dem data • Better information on beneficiaries of Healthy Start • Objective measure of Health Start status • Access to retailer level characteristics via merging with DB2 	<ul style="list-style-type: none"> • No income or price data • No reasons given for lack of use
Dunnhumby & DB1	<ul style="list-style-type: none"> • Does Healthy Start increase weekly expenditure on fruit / vegetables / milk / formula / vitamins? • Does Healthy Start increase % of food expenditure on fruit / vegetables / milk / formula / vitamins? 	<ul style="list-style-type: none"> • Directly observed data on expenditure • Expenditure for individuals can be tracked over time • Evidence on all Healthy Start products (not breastfeeding) and non-Healthy Start products • Price data for that day can be matched or taken from receipt 	<ul style="list-style-type: none"> • Most complex of the datasets to prepare • Data owned by private company • No income data (could proxy using IMD via application postcode) • few control variables available at individual level • only relevant to Healthy Start population

Database	Research questions	Advantages	Disadvantages
		<ul style="list-style-type: none"> • Possible to see extent to which Healthy Start voucher use is bundled or spread over time • Can group expenditure over specific time period or per shop 	shopping in Tesco (although this might not be limited to those who cite Tesco only as their most common redeeming shop)

The economic literature review pointed to the paucity of data on the cost-effectiveness of voucher-based supplementary feeding programmes for low income families. There is nothing on the cost-effectiveness of the Healthy Start scheme, for any of its past or present guises. If evidence on the impact of Healthy Start could be linked to the demand for each of the products as well as breastfeeding and compared with the cost of running the scheme, the first cost-consequences and cost-effectiveness analysis could be undertaken. If this analysis could be extended to understanding the impact on nutrient intake related to change in consumption of Healthy Start related foods as well as others, the cost-effectiveness analysis could consider the impact on all foods together. Modelling the impact from nutrient intake and/or increases in consumption of specific foods to impact on quantity and quality of life to estimate impact on future quality adjusted life years would be more challenging. If there was any further information, such as the impact on earnings of stores operating the scheme or on producers, a cost-benefit analysis could be considered. However, this latter possibility has not been assessed for feasibility.

7.5 Recommendations

No dataset can fully answer the policy question of main or subsidiary interest about the impact of Healthy Start on demand for products supported by the Healthy Start scheme; none is able to compare a fully representative sample of Healthy Start recipients with appropriately matched non-recipients to ascertain a reliable and unbiased estimate. However, several datasets could contribute to addressing the policy questions and, if results were to be taken as a whole to help mitigate some of the disadvantages of each dataset. This would provide the first and important insight into the demand for useful evidence base for future decisions. Five broad recommendations are set out below, with sub-categories of recommendations designed to help achieve each.

Recommendation 1: Evaluate the impact of Healthy Start vouchers on the demand for: products supported by Healthy Start vouchers (i.e. vegetables, fruits, milk, formula, vitamins) and breastfeeding; other 'healthy' and 'unhealthy' products/activity not supported by the Healthy Start scheme; and overall food consumption / expenditure

Recommendation 1.1 Use the IFS to test whether there is a difference in self-reported consumption between: a) eligible participant vs. eligible non-participant, and b) eligible vs. non eligible low income family with children under 4 for:

- a. fruit and vegetables at stages 2 and 3
- b. vitamins at stages 1, 2 and 3
- c. consumption of cows' milk at stages 1, 2, 3
- d. formula use at stages 1, 2, 3
- e. rates of breastfeeding at stages 1, 2, 3

Recommendation 1.2: Extend analysis in 1.1 to an area-based demand analysis to minimise likelihood of biased estimates of Healthy Start scheme (through control for important economic variables, among others).

Recommendation 1.3: Using 3 methods to predicting eligible Healthy Start participants and eligible non-participants in the LCFS, assess the impact of Healthy Start on the demand for fruit, vegetables, milk, 'healthy' food, 'unhealthy food, and all food.

Recommendation 1.4: Compare the Healthy Start product purchases in areas with high concentration of Healthy Start recipients with areas with low concentration of Healthy Start recipients using Dunnhumby data

Recommendation 1.5: Compare product purchases over time between users of Healthy Start vouchers and 'matched' sample using Dunnhumby data.

Recommendation 1.6: Compare product purchases over time (roughly 2 years) between users of Healthy Start vouchers and 'matched' sample using Kantor World Panel data for a sample of around 50-100 people in each group.

Recommendation 2: Investigate variations in use rate of Healthy Start vouchers

Recommendation 2.1: Link the DB1 data set to postcode-based data to explore associations with use rate

Recommendation 2.2: Link the results of 2.1 to predict likely success of alternative methods designed to increase coverage and link this to expected costs of these methods.

Recommendation 3: Improve the quality of existing databases

Recommendation 3.1: Improve the quality of DB1 (data held by SERCO) by checking and sorting out; postcodes, number of vouchers issued, number of children of applicant / siblings per beneficiary

Recommendation 3.2: Increase the quantity of data recorded for Tesco and Asda held in DB1 (data held by SERCO) and DB2 (data held by MRM), by linking data for voucher redemption to stores (including stores postcode) where the vouchers are redeemed rather than only providing head office data.

Recommendation 3.3: Increase the data available to SERCO (from MRM) to indicate each store from which vouchers are redeemed rather than only main redeeming store.

Recommendation 3.4: Improve quality of data held on vitamins at PCT level by a) considering what might improve its reliability and b) linking to number of Healthy Start beneficiaries per quarter/year.

Recommendation 3.5: Improve future DB4 data (held and generated by FDS) by: use of random sampling methods; use of more control variables in questionnaires, including use of post codes; links to individual ID numbers held in DB1; and return to the same group of respondents again (including if they are no longer receiving Healthy Start vouchers).

Recommendation 3.6: Add in questions about the quantity of fruit, vegetables, vitamins, formula and milk consumed to IFS

Recommendation 3.7: Ask about receipt of Healthy Start vouchers in the living costs and food survey (and if hand-held devices are to be used in this survey, ensure the Healthy Start vouchers can be scanned in)

Recommendation 3.8: Add postcode data to the next Infant Feeding Survey to extend the linkage possibilities and extend use of explanatory control variables.

Recommendation 4: Evaluate the costs, effects and cost-effectiveness of the Healthy Start scheme

Recommendation 4.1: Evaluate the costs, effects and cost-effectiveness of alternative ways of increasing 'coverage' (either increasing 'use rate' of vouchers dispensed and/or increasing applications among those who are eligible).

Recommendation 4.2: Evaluate the costs, effects and cost-effectiveness of alternative programme designs for the Healthy Start scheme (e.g. applying different age criteria, different eligibility routes through changing benefit links, different voucher values, use of electronic cards rather than paper vouchers, coverage of different products).

Recommendation 5: Conduct new primary data collection to inform future analysis of the impact of Healthy Start on breastfeeding and demand for products supported by Healthy Start.

Recommendation 5.1: Add questions on total food expenditure, prices paid, a larger set of control variables including income to the IFS in a specific follow-up data collection exercise to IFS 2010.

Recommendation 5.2: Add questions on total food expenditure, prices paid, a larger set of control variables including income to the next IFS survey.

Recommendation 5.3: Repeat annual data collection (ideally with the variables in recommendation 5.1) with 2 groups of women who participated in IFS 2010: those using Healthy Start vouchers and a 'matched' comparison group over time until the birth cohort reaches 5.

CHAPTER 8: DISCUSSION

8.1 Summary of findings

This multi-method study involved a series of literature reviews, assessment of existing databases, and empirical work with 838 participants from very varied backgrounds including 113 women and 725 practitioners, service managers, commissioners, policy makers and advocacy groups. It identified a number of clear and consistent findings. It culminated in six agreed recommendations for the development of the Healthy Start scheme; the seventh recommendation was amalgamated with the recommendation for using national databases and five recommendations for using national databases to assess the impact of Healthy Start vouchers on the demand for fruit, vegetables, vitamins, milk and breastfeeding, and other goods among low-income families. Appendix 63 summarises all the recommendations.

The literature reviews identified very few existing qualitative studies of women's or practitioners' views of participating in food support programmes. The update of the Food Support review did not provide strong evidence to support the premise that food support in the form of vouchers or food packages has an impact on the health status of babies born to low-income and socially disadvantaged women, and did not find any significant impact on rates of low birthweight. The systematic review of economic literature found no evidence, within the context of supplementary feeding schemes, of either the cost-effectiveness of vouchers or of the impact of vouchers on the demand for vitamins, infant formula or breastfeeding. It found mixed evidence on the demand for fruit and vegetables and one study showing an increase in purchase of milk but, as all studies were from the US, significant questions were raised about the transferability of findings to the Healthy Start scheme.

A major finding of our evaluation of women's and practitioners' views of the Healthy Start scheme was the high degree of consensus across the different participants concerning the key issues.

Overwhelmingly our study participants perceived and valued Healthy Start as a scheme that could and does have an impact on the health of childbearing women and young children under five years old in low-income families. Women felt that Healthy Start goes some way to meeting its aims by prompting them to think about their diets and more specifically increasing the range of fruit and vegetables eaten. There was a consistent theme from the participating women that, because they had the extra financial support of Healthy Start vouchers, they were able to experiment with different fruits and vegetables for their children. The additional financial support enabled families to increase the quantity of plain cows' milk and/or quantity and range of fruit and vegetables that they purchased. This impact was reported not only to improve the quality of family diets while receiving Healthy Start vouchers but to potentially establish good habits for the future. Comments from both practitioners and women suggested that this impact had particular salience for teenage pregnant women (<18 year-old) who may not otherwise have had access to resources to buy nutritious food. Recipients of Healthy Start vouchers appreciated the range of outlets where they could redeem them, although most used the major supermarkets.

The Healthy Start scheme was also perceived by practitioners to have the potential to improve health outcomes through providing vitamin supplements. A small, but slowly increasing number of women and children are accessing free Healthy Start vitamins. However, this increase is a result of the extraordinary efforts made by health practitioners, public health specialists and local champions to overcome the administrative difficulties of vitamin supplement distribution. It is yet to be seen whether the new statutory arrangements for Healthy Start vitamins that come into place from 1st April 2013 and which transfer the responsibility to the NHS Commissioning Board, Clinical Commissioning Groups and/or local authorities will make this task any easier (DH, 2012a).

Differences of opinion, where they existed, tended to be ones of emphasis. For example the practitioners focused on the administration of the vitamin supplements rather than the vouchers for fruit, vegetables, milk and infant formula. In contrast the focus of the women was on use of the use of vouchers.

In spite of the generally positive perceptions of Healthy Start, aspects of the scheme were of concern to many of our participants. A low level of awareness of Healthy Start among the general population and some groups of eligible families was reported. Consequently there is dependence on health professionals, particularly midwives and health visitors, to inform potential beneficiaries and encourage them to apply. For a variety of reasons, health professionals may target this information only at those they perceive to be eligible. This may explain one barrier to uptake. From our findings others who may be missing out are from minority ethnic backgrounds, especially those who do not speak English and working families on low incomes because eligibility is more difficult to define for working families or those whose financial circumstances change. This finding resonates with the IFS 2010 (McAndrew et al. 2012) which found that although Black mothers were most likely to report being eligible, their registration levels were similar to other groups. Another concern about eligibility was that those who are most financially and nutritionally vulnerable, such as asylum-seekers, are not eligible. There was a consistent sense of frustration expressed by women who were employed but were just above the eligibility threshold to qualify for Healthy Start.

While most women said the application process was straight forward and cited a range of sources of help to complete the form, there were many examples of delays and problems with the issuing unit that some found off-putting. Women who did not speak English or who could not write faced considerable barriers in the process of registering for Healthy Start.

The main concerns related to using Healthy Start vouchers were a minority who felt stigmatised, and a lack of access to registered retailers in rural areas and to retailers who sold culturally appropriate fruit and vegetables for women from minority ethnic backgrounds. The potential for Healthy Start to have an impact on healthy eating was felt to be undermined by the rising price of food relative to voucher value. Inconsistencies in the way retailers deal with vouchers such as the number that could be used in a transaction and how strict counter staff were in checking goods were highlighted by some women. Use of vouchers for ineligible products was a common theme in our evaluation but other than one very specific example, we identified no direct evidence of this practice and it was difficult to assess how much of this was first-hand experience, rumour or urban myth.

Only one third of mothers in our study said they were taking vitamin supplements and, of these, only 40% took free Healthy Start vitamins. The proportions were similar for those who said they gave their children vitamin supplements. Lack of information about where to access them or misunderstandings about the need for vitamin supplements were the key issues for women. From the perspectives of health practitioners, distributing Healthy Start vitamins was logistically complex and challenging and required investment of time, resources and creative thinking of a range of practitioners from senior strategists to administrative support workers. A particular concern for health practitioners was that many women and children who do not qualify for Healthy Start vouchers would benefit from vitamin supplementation. This led to the proposal to separate the two aspects of the scheme and to provide, or at least consider, the cost-benefit of universal supplementation.

The most contentious aspect of the Healthy Start scheme from the perspective of practitioners was the inclusion of infant formula as a Healthy Start product. To many, this appeared to be contradictory to the scheme's stated aim to promote breastfeeding. To some extent this concern is justified by the findings of the IFS 2010 that breastfeeding rates at all time points are lower for

mothers registered on Healthy Start compared to those who thought they were eligible but were not registered, and compared to those who have never worked. However, sampling issues or confounders within the IFS may provide an alternative explanation for this. While women valued the inclusion of infant formula and suggested the value of vouchers should be increased to cover the entire cost of infant formula, practitioners suggested that it should be retained but rebranded as a nutritional safety net.

One of the broader aims of the Healthy Start scheme is to promote early engagement of disadvantaged women with health services so that they can receive information regarding healthy lifestyles such as breastfeeding and healthy eating. The rationale for the requirement to have the form signed by a health professional was that it would result in women making contact earlier than they would otherwise do, and thus be exposed earlier to health nutrition messages. However, our data do not suggest that women are in fact making contact earlier than they otherwise would since many are not aware of their possible eligibility for Healthy Start until they are told about it by a midwife or health visitor. Furthermore, health practitioners saw health nutrition advice as part of their wider remit for all women and babies and did not associate it with Healthy Start. This suggests that the requirement to have application forms signed by health professionals is not facilitating the desired outcome.

The importance of reviewing existing databases to establish the possibilities for assessing the impact of Healthy Start on the consumption or expenditure on fruit, vegetables, milk, vitamins as well as breastfeeding is highlighted given the little and mixed economic evidence from the US and challenges to the transfer of results. No single database in the UK can address the issue fully. However, analysis of the IFS 2010, linkage to the LCFS through data held for the Department of Health and IFS and analysis of commercially available data can, if taken together, provide good complementary evidence of the impact of vouchers on the demand for products that are supported by Healthy Start as well as other purchases. Findings could usefully inform future decisions for targeted primary research. There is an additional possibility of using existing data to examine factors associated with rates of voucher use, at both an individual and area levels. There is a notable gap in published evidence on the costs and benefits of the existing Healthy Start scheme or the impacts of changing types of provision (e.g. voucher value, eligibility criteria, product range, approaches to increasing voucher use rate).

8.2 Strengths and limitations of the methods

This multi-method evaluation was based on methods used successfully by members of the research team in previous projects (Dyson et al. 2006; Renfrew et al. 2008). The approach facilitated the inclusion of views and experiences from a broad range of constituents. Recruitment targets were met or exceeded in all components of the evaluation of practitioners' and women's views, with the exception of the participatory workshops to which 81 women out of a target of 100 were recruited. For the practitioner work we were able to include in-depth views of a range of practitioners from different localities serving different populations, for example rural, urban and ethnically diverse populations within our two sentinel sites. This enabled us to gather information on specific issues in specific contexts and gave us the opportunity to follow-up and clarify our understanding of the data. The national electronic consultation enabled the inclusion of a large number of respondents from all regions of England and representing the views of a wide range of professional groups, support staff, service managers and commissioners, policymakers and user representatives.

Our flexible, purposive approach to sampling for the work with women guided by an a priori sampling framework resulted in recruitment of diverse participants. Consequently we were able to explore the experiences and barriers for those registered for the scheme as well as those who were eligible but not registered and those who were borderline eligible. We were particularly successful in recruiting participants from minority ethnic backgrounds and those who did not speak English,

groups who are considered 'hard-to-reach'. The group that proved most challenging to recruit were under-18 year olds and although 12 women (11% of our sample of women) were aged 20 or under we had aimed to conduct three participatory workshops with up to 30 women from this age group. It may be that group methods such as participatory workshops and focus groups are not the best way to recruit young mothers to research studies. While a recruitment approach that targeted pre-existing groups was most successful in achieving workshops of eight or more participants, we also recruited individuals through health professionals and family support workers. This may be relevant because it has been suggested that those who attend groups may have better access to social networks, social support and resources than those who do not attend groups (Marshall et al. 2012).

Collaborating with a NGO that had experience in working on food policy issues and with expertise in food access and participation was a successful strategy for gaining the trust of participants and fostering an informal atmosphere in which participants felt able to contribute their views. The inclusion of members of the research team to help with facilitation of the workshops did not appear to inhibit this. Several participants commented on how well the workshops had been run and that they had enjoyed taking part. Our flexible multi-method approach to data gathering including focus group discussions and telephone interviews enabled us to include participants who might be considered 'hard-to-reach'.

As in our previous work (Dyson et al. 2006; Renfrew et al. 2008), the cross-sectoral workshops enabled us to gain the perspectives of a wide range of stakeholders including those with national, regional and local responsibility for implementing Healthy Start, health professionals and support and administration workers and user representatives. Because of this approach we are able to present a set of recommendations developed through a transparent process and discussed by those with an interest in their implementation. The cross-sectoral workshops and the national electronic consultation have provided us with a network of interested stakeholders through which we can disseminate the findings of this evaluation and who could contribute to future consultation and discussion on this and related topics.

A key strength of this evaluation was the involvement of users at all stages from design of the study to development of the recommendations. The panel of key user informants was an effective method of gaining in-depth views of a group of users during the life of the project. The panel's views of the content of the participatory workshops and the focus groups with women who did not speak English were particularly helpful in preparing the application for ethics approval. It was crucial to the panel's success that the participants were recruited by individuals whom they trusted and that those individuals attended the meetings. A familiar and convenient venue that facilitated an informal atmosphere and allowed children to be cared for in the same room was also an important element in encouraging attendance. Careful planning regarding the timing and content of the meetings was important to ensure timely input and to avoid repetition. From the views of one participant, we were not entirely successful in this aim. One of the participants of the panel had limited English language skills making it difficult for her to contribute meaningfully to discussions. It would have been helpful to have had the resources to provide an interpreter. This is an important consideration where the views of vulnerable women who may not speak English are an important element of research.

This research has produced the first systematic review of economic evidence in the area, developing previously tested search mechanisms by including and testing new economics related terms. The results provide; alternative suggestions for specifying a range of dependent variables; evidence for a good range of control variables to examine; alternative methods for specifying participation in the Healthy Start scheme; and evidence on the application of alternative demand modelling techniques. The review also applied a relatively newly-developed set of questions designed for examining the quality of econometric analyses. This added further consideration to the importance of evidence. However, necessary adaptations to definitions and clarifications to scoring quality should be subject

to critical review. It is also the case that a broader specification of literature, for example including health education in addition to only vouchers, would have brought in a wider literature on cost-effectiveness for review.

The review of databases provides the first consideration of data available in the UK for addressing the impact of Healthy Start vouchers on either consumption or expenditure for a range of foods. It can be used to help specify a range of relationships for econometric investigation. It also provides multiple ways of dealing with the challenge of identifying Healthy Start recipients and comparison group against which to examine the impact of Healthy Start. However, the cost of conducting each of the proposed alternatives is not provided and any conclusions about the best way forward also need to be matched to current policy questions of interest. Finally, this research does not specify the potential focus of primary research for such decision-making.

8.3 Discussion of the relevance of results in a policy context

This evaluation has addressed the value and use of the Healthy Start scheme to low income families and examined how well it is working. Some of the recommendations are directed at the micro level of administration of the scheme that could be addressed relatively easily. Addressing these issues could improve efficiency of the scheme by increasing the claim rate, ensuring that eligible families are registered and receive vouchers as early as possible and are able to use them effectively and increasing the uptake of Healthy Start vitamins. In a policy context the most important considerations are the impact of the current economic climate and the proposed changes to the health service structures.

8.3.1 Does Healthy Start meet its aims?

Healthy Start has three main aims for low-income families:

- a) To provide a nutritional safety net
- b) To improve the diet of pregnant women, breastfeeding mothers and children
- c) To promote breastfeeding, healthy eating and early access to health professionals in pregnancy

There is some tension between meeting these three aims – for example tension between providing vouchers that can be used to purchase infant formula (important as a nutritional safety net) may both undermine promotion of breastfeeding and use up all the value of vouchers so that women and children cannot increase their intake of fruit, vegetables or cows' milk.

Healthy Start as a nutritional safety net

Healthy Start provides an important nutritional safety net for pregnant women and young children living on very low incomes. For example, a single pregnant woman under 25 years old expecting her first child and out of work receives £56.25 per week in income-based Jobseeker's Allowance (<https://www.gov.uk/jobseekers-allowance/what-youll-get>). To eat a realistic, palatable diet that meets her nutritional requirements for pregnancy would cost her about £30.34 per week (Dallison & Lobstein, 1995), up-rated by inflation (Consumer Price Index figures for food items 1996-2011). This would mean spending an unaffordable 57% of her non-housing income on food. In reality, households in the lowest income decile in the UK spend on average 16.7% of their income on food, or £22.46 per person per week (ONS, 2012). Davis et al (2012) suggest that two parents with two children need to earn £18,400 each to maintain a minimum standard of living. This can be compared to the Healthy Start threshold for eligibility of a household income of £16,190 or less. The Healthy Start vouchers (worth £3.10 per week in 2012/13) guarantee access to some vegetables, fruit and/or milk in the context of a weekly food budget under severe pressure.

Healthy Start is likely to become even more important to low-income families in the context of proposed benefit changes. Welfare benefits have historically risen in line with inflation; however, current government plans are to cap future rises in welfare benefits at 1% per year until 2016 in line with public sector wages (Welfare Benefits Up-rating Bill 2013). This means that unless inflation is below 1%, families receiving benefits will see the cost of food rising faster than their incomes. This will increase the importance for pregnant and breastfeeding women and young children of having the extra Healthy Start support to buy fruit, vegetables and milk. However, if the value of the vouchers themselves does not keep pace with the rising cost of food, the nutritional safety net will be eroded.

It is likely that, in the current economic climate, more families will become dependent on welfare benefits and will be eligible for Healthy Start. Increased demand on the national Healthy Start budget could raise the possibility that either the eligibility criteria or the value of the voucher support will be reviewed by the government. From 2013, Universal Credit will begin to replace the benefits which currently entitle women and children to Healthy Start, and it is not yet known how this will impact on Healthy Start eligibility. At this stage it is difficult for health professionals to estimate numbers who may be so affected although many are of the opinion that the numbers will be large. It is a clear finding of this study that Healthy Start is valued and depended on by those who receive it as a means of affording nutritious food for themselves and their children, or of feeding their formula fed babies safely. It is therefore essential that if the Healthy Start scheme is to change, either in terms of eligibility and/or in the value of vouchers offered, some kind of economic modelling be used to try and estimate the costs and effects of different eligibility criteria and voucher values.

Reducing health inequalities

Healthy Start has the potential to contribute to the reducing health inequalities agenda. However, this study has found that its effectiveness is undermined by the significant barriers that exist to accessing Healthy Start, in particular for two main groups. The first group is women who do not read or write English to a level that enables them to benefit from written material, complete the application form and understand communications from the issuing unit. All of this can lead to non-registration or significant delays in receiving the vouchers. The second group is women for whom eligibility is less clear, for example those in low-paid work or whose income is variable. These women may be missed because health practitioners target information only at those whom they judge to be clearly eligible. The recommendations of this evaluation and the examples of good practice described in the findings contain suggestions for addressing these barriers.

The effectiveness of Healthy Start in combating health inequalities is also undermined by limitations in the range and location of retail outlets where Healthy Start vouchers can be exchanged. Both the women and the practitioners participating in our research identified some practical challenges to using the vouchers, such as transport difficulties or expense especially in rural areas, and the non-participation of market stall holders and culturally diverse smaller retailers. Understandably, health practitioners were wary about the workload involved if they took responsibility for addressing these issues. Identifying champions from the relevant sectors (e.g. Institute of Grocery Distribution, British Retail Consortium) who could support, train and equip retailers to engage with Healthy Start could address some of the shop level implementation challenges. This could appeal to some businesses as part of the Corporate Social Responsibility agenda.

Contribution of Healthy Start to public health outcomes

Given adequate voucher value and access to the scheme for families in need, our evaluation of Healthy Start has demonstrated potential to contribute to public health outcomes through increasing the quantity and range of fruit and vegetables in the diets of women and children, helping to improve longer term eating habits. However, there is no economic evidence yet demonstrating

impact of Healthy Start on demand for fruit, vegetables or milk in the UK. If Healthy Start did have such an impact, it would help to address policy aspirations to reduce long term conditions such as diabetes as well as improving wider nutrition-related health and contributing to a life-course approach to reducing obesity as recommended in Healthy Lives, Healthy People: A call to action on obesity (DH, 2011). As argued above, in regard to Healthy Start as a nutritional safety net, for these policy aims to be realised, voucher value and reach of Healthy Start must be protected. A strong theme for the practitioners who participated in this study was that strengthening the interrelationships between Healthy Start and other public health policies and practices such as Start4Life, Change4Life and the obesity agenda would raise its profile as a scheme that offers tangible benefits for those in need.

A key component of the Healthy Start scheme is the distribution of free vitamin supplements containing vitamins C, D and folic acid for women and vitamin drops containing vitamins A, C and D for children. There is considerable current concern over rising evidence of vitamin D deficiency (McAree et al. 2013; SACN, 2007; Scottish Government, 2011; Senti et al. 2012); effective supplementation of pregnant women, breastfeeding mothers and children has the potential to address this problem. In 2012, a letter from the Chief Medical Officer reminded health professionals of the recommendation of all UK Health Departments that: 'All pregnant and breastfeeding women should take a daily supplement containing 10µg of vitamin D, to ensure the mother's requirements for vitamin D are met and to build adequate fetal stores for early infancy' (CEM/CMO/2012/04). Many practitioners in this study strongly critiqued the current approach of providing free Healthy Start vitamins only to those registered for Healthy Start (except where there has been a local decision to supply them to women and/or children beyond the scheme). Because the eligibility criteria relate to age or receipt of welfare benefits, the scheme does not reach women and children outside these categories who are equally at risk of vitamin D deficiency – for example, women from Black and minority ethnic communities and those who are obese²⁸. The aim of Healthy Start, as currently configured, is to provide vitamin supplements to low-income pregnant women and families with young children who would not be able to afford to purchase them. However, many participants in this research felt that a sensible approach would be to provide universal free vitamin supplements to meet broader policy aims. It was suggested that the current approach could even undermine public health goals by giving women and health professionals the misleading impression that only the very poor or very young need vitamin supplements in pregnancy and early childhood.

A second widespread concern is that many women of childbearing age do not follow Department of Health advice to take regular folic acid supplements to reduce the incidence of neural tube defects (DH, 1991, 2000; SACN, 2006). The critical period for folic acid supplementation is pre-conception and the first 12 weeks of pregnancy, and low-income women are most at risk of folic acid deficiency. As currently configured, Healthy Start does not realise its potential to address this problem because free Healthy Start vitamins are only available for women who are at least 10 weeks pregnant, and given the time taken for the application process, most women do not receive vitamin vouchers until later. A different strategy is needed which better reaches those at risk.

NICE guidance for improving the nutrition of pregnant and breastfeeding mothers and children in low-income households recommends that community pharmacists should ensure that Healthy Start vitamin supplements are available for purchase by women who are not eligible to receive them free of charge (NICE 2008, p.33). According to the practitioners who took part in this evaluation there are practical obstacles to operationalising this strategy locally which may explain why this recommendation is not implemented more widely.

²⁸ It should be noted that while NICE include obese individuals as a group at risk of vitamin D deficiency, the Department of Health recommendations do not recommend all obese people routinely take vitamin D supplements.

As is evident from this evaluation, the vitamin supplementation component of the Healthy Start scheme is dysfunctional, despite the best and sometimes extraordinary efforts of those attempting to operationalise it locally. These efforts entail an opportunity cost for other public health work. Many examples of good practice and suggested strategies are included in this report. The recommendation which was favoured most strongly was free universal vitamin supplementation for all pregnant women, postnatal women and children up to their fifth birthday. In the opinion of many practitioners this would be more cost-effective because it would reduce the resources being spent on trying to make the current system work. It would overcome the problem of vitamin D supplementation not being targeted at the women and children most at risk of deficiency, and it would make folic acid supplementation at the relevant time more likely (at least for second pregnancies). These options could be the focus of cost-utility analyses.

Finally, in relation to public health, Healthy Start is intended to support current policy aspirations to increase breastfeeding rates among low-income women. However, evidence to date is that the relationship between Healthy Start as it currently operates and promotion of breastfeeding is unclear. There is perhaps a need to target breastfeeding support for women registered for Healthy Start who, as the IFS 2010 findings suggest, are less likely to breastfeed.

Early access to health services and provision of health and lifestyle related information

A stated aim of Healthy Start is that it would encourage low-income women and families to contact local antenatal, postnatal and child health services and provide an opportunity for health practitioners to provide information on issues such as healthy eating and breastfeeding. There is no strong evidence that Healthy Start fulfils this aim using its current processes. The fact that a health professional has to sign the application form is viewed by women and many health professionals as a contribution to delay in receiving vouchers and vitamins, or even a hindrance to early access and as an unhelpful layer of bureaucracy. Information from participants suggested that it does not actually improve the dialogue between women and midwives in relation to any health promotion outcome. A review of the procedural structures of Healthy Start and how nutritional information is offered to women is required along with recognition that Healthy Start is part of a broader nutritional and public health strategy is needed. This could contribute to addressing NICE guidance for women with complex social needs (NICE, 2010).

Changes to NHS structures and responsibilities

The current/ongoing transfer of responsibilities for public health from the NHS to local authorities following implementation of the 2011 Health and Social Care Bill and Healthy Lives, Healthy People: Our strategy for public health in England (HM Government, 2010) is generating uncertainty at many levels. Practitioners in this evaluation argued that the mechanisms for cross-sectoral working between local authorities, the NHS and local benefits offices were crucial to sustaining and improving the uptake and efficiency of Healthy Start. Indeed, a major concern highlighted by most of the practitioners who participated in the study was the lack of leadership at a regional level following the changes to Strategic Health Authorities which came into effect in April 2012. Such uncertainty has many ramifications, but will be particularly critical for a scheme such as Healthy Start which relies on effective operation at local levels, and which works with the most economically disadvantaged families at a vulnerable time in their lives. It is critical that local leaders or champions be identified as soon as possible within the new structures to sustain what this evaluation has shown to be the excellent work to date of Healthy Start leads, and to implement many of the recommendations of this study.

Changes to benefits delivery mechanisms

In October 2012 the DWP was reported to be exploring the delivery of benefits through a pre-paid smart card that could only be used to buy designated priority items ('120,000 troubled families could

be legally banned from spending benefits on alcohol and tobacco', The Telegraph 13 October 2012). The DWP was said to be considering the merits of the Australian Basics card (which is used for benefit recipients assessed as 'vulnerable'). Some women who took part in this study said that they would prefer to use a smart card for Healthy Start purchases rather than paper vouchers, as it would be both more convenient and would enable them to buy Healthy Start goods as part of an online delivery – which is a cost-effective shopping method for women with poor access to affordable transport, especially in rural areas. The introduction of a 'Basics' card style scheme in the UK would provide a technological precedent for the modernisation of the Healthy Start voucher delivery mechanism, although there would need to be careful consideration of the implications for smaller retailers such as market traders and food co-operatives.

Supplying the evidence about Healthy Start to support policy change

In austere times it is harder to argue cases for intervention and continuation. We have provided good evidence either side of the 'frontline' of Healthy Start, showing its importance to women and children and accounting for professional views of those in provision, management and policy roles. We have indicated ways of improving the efficiency of existing services. This includes strong qualitative evidence and extensive representation of views from across service providers. It also includes the very limited evidence on effectiveness from the UK and findings of questionable relevance from the US. We indicate the need for evidence from the UK and note that there are no large scale studies of impact in the UK. However, we suggest multiple ways of managing this with existing data and these options viewed together have the opportunity to provide policy makers with a range of good quality quantitative evidence on the impact of Healthy Start vouchers on the expenditure and consumption of fruit, vegetables, vitamins, infant formula, milk as well as other products and breastfeeding. Such evidence can be used to support policy and would be stronger if additionally supported with cost and cost-effectiveness analyses.

8.4 Conclusions and further research

This evaluation has shown that Healthy Start is an important scheme to women, children and their families, and to health and social care practitioners. From the perspectives of all those who took part in our study, Healthy Start meets its aim to be a nutritional safety net for low-income families by providing a small amount of financial support for the purchase of fruit, vegetables, plain cows' milk and infant formula. There was evidence from this evaluation that Healthy Start has potential to contribute to health outcomes for women and children by increasing the quantity, quality and range of fruit and vegetables consumed, and by establishing good eating habits in early life that might continue through the life-course. However, both of these aims could be compromised if the value of the vouchers does not keep pace with the rising cost of food, particularly the cost of fresh fruit and vegetables, or if barriers to access to the scheme for vulnerable families are not addressed.

There is evidence of some tension between the aspiration of the scheme to promote healthy eating and breastfeeding, and the inclusion of infant formula. While most of the participants in this study felt that the inclusion of infant formula was important as a nutritional safety net, many practitioners recommended that the Healthy Start scheme should make it clear that infant formula is not a healthy choice. The inclusion of vitamin supplements in the Healthy Start scheme is valued by many health practitioners, especially as a strategy to address concerns about vitamin D deficiency. However, as clearly shown in this evaluation, the current processes of vitamin distribution are not working. Free, universal vitamin supplements provided for all pregnant and postnatal mothers, and for children under five years was the favoured option for addressing this. This option could be evaluated with in a cost-benefit framework.

Through a rigorous, transparent process, we are able to present a set of important and feasible recommendations that have been derived directly from the evidence gathered from women and

practitioners and that have been developed by a wide range of stakeholders with knowledge of and interest in their implementation. The recommendations address micro-level change such as improving administration processes, as well as broader policy considerations including extending the reach of the scheme, increasing the financial value of Healthy Start vouchers and embedding Healthy Start within broader public health policies .

The systematic review of economic literature suggested that participation in WIC and FSP/SNAP had most consistently been linked to an increase in the demand for fruit and to a lesser extent milk. However, the impact of these programmes on the demand for vegetables was mixed, with studies finding both in favour and against an impact and most studies identifying no significant association. There was some evidence of a positive impact on demand for beef and a reduction in the demand for food outside the home. The latter indicates that there may be impacts on purchasing outside of the products supported by the voucher programmes. Most other products had either no evidence of significant association with either voucher programme or evidence of both positive and negative associations. We identified five main challenges to transferring these findings to the UK; the US programmes cover a much wider range of goods; the US programmes have different eligibility criteria; the evidence in US studies was based on a different ethnic mix; no evidence was available on some products supported by Healthy Start i.e. vitamin supplementation, infant formula and breastfeeding; and the absolute and relative prices differed along with availability of different types of food.

An assessment of the feasibility of using national databases to assess the impact of Healthy Start vouchers on the demand for fruit, vegetables, vitamins, milk and breastfeeding, and other goods among low income families found that no dataset can fully answer the policy question of main or subsidiary interest about the impact of Healthy Start on demand for products supported by the Healthy Start scheme; none is able to compare a fully representative sample of Healthy Start recipients with appropriately matched non-recipients to ascertain a reliable and unbiased estimate. However, several datasets could contribute to addressing the policy questions and, if results were to be taken as a whole, to help mitigate some of the disadvantages of each dataset.

The systematic review of economic literature suggested that participation in WIC and FSP/SNAP was associated, in one study only, with an increase in the purchase of milk. The results for fruit were mixed as two studies showed a positive impact among participants and two showed no impact. The results for vegetables were even more mixed, with studies finding both in favour of a positive and negative impact and most studies identifying no significant association. There was some evidence that purchases of other products beyond those supported by vouchers also increased. However, given differences in the design and eligibility of voucher schemes as well as availability and pricing of food between the US and UK, expecting results or even underlying models to transfer reliably is challenging.

An assessment of the feasibility of using national databases to assess the impact of Healthy Start vouchers on the demand for fruit, vegetables, vitamins, milk and breastfeeding, and other goods among low income families found that no dataset can fully answer the policy questions of main or subsidiary interest; and none is able to compare a fully representative sample of Healthy Start recipients with appropriately matched non-recipients to ascertain a reliable and unbiased estimate. However, analysis of several datasets together provide good complementary evidence of the impact of vouchers on demand for products that are and are not supported by Healthy Start and usefully inform both current policy debates and future primary research.

8.4.1 Future research

The starting point for our analysis of future research needed was the scoping review of approaches to evaluating Healthy Start by Dyson et al. (2007). The purpose of Dyson et al. (2007) was to identify

comprehensive research recommendations for approaches to monitoring and evaluating the longer-term health and social outcomes of the Healthy Start scheme.

This current evaluation has addressed the Dyson et al. (2007) recommendation for qualitative work to address process outcomes and description of the impact of Healthy Start, for example what women spend vouchers on, whether administrative processes are successful at reaching all population groups, and the views of women and health professionals of the scheme.

As recommended by Dyson et al. (2007), further comparative research is needed to assess the effectiveness and cost-effectiveness of the Healthy Start scheme in meeting its stated aims and improving health outcomes for women and children. Dyson et al. (2007) examined a range of options for purposive studies and concluded that a cohort study could provide an opportunity to measure the potential incremental effect of Healthy Start over time. Four options for evaluation were suggested as follows:

- Option 1: National monitoring and evaluation of core outcomes of effectiveness and coverage
- Option 2: National monitoring and evaluation of comprehensive range of outcomes of effectiveness, coverage and impact of scheme
- Option 3: National monitoring and evaluation of limited core outcomes of effectiveness and coverage
- Option 4: Local monitoring and evaluation of comprehensive range of outcomes of effectiveness, coverage and impact of scheme for potential extrapolation of core outcomes to similar areas at national level

The systematic review of economic literature concluded that UK-specific data is needed to determine the impact of Healthy Start on the demand for products supported by Healthy Start because of the mixed evidence from US programmes and the challenges to accepting transference of results and models to the UK. Future research should account for products beyond those supported by Healthy Start, ideally account for changes in spending over time, and test the need to control for a range of variables such as household size, urbanisation status, age, education and ethnicity. Any evidence on the impact of changing eligibility criteria or the value of the voucher would provide new knowledge of international interest.

Building on the recommendations from Dyson et al. (2007), we evaluated the feasibility of conducting an economic study to assess the impact of Healthy Start vouchers on the demand for fruit, vegetables, vitamins, milk and breastfeeding, and other goods among low income families. Given our conclusion that no one dataset can fully answer the policy question of main or subsidiary interest about the impact of Healthy Start on demand for products supported by the Healthy Start scheme; we present five main recommendations for future research as follows:

- Recommendation 1: Evaluate the impact of Healthy Start vouchers on the demand for: products supported by Healthy Start vouchers (i.e. vegetables, fruits, milk, formula, vitamins) and breastfeeding; other 'healthy' and 'unhealthy' products/activity not supported by the Healthy Start scheme; and overall food consumption / expenditure using selected datasets.
- Recommendation 2: Investigate variations in use rate of Healthy Start vouchers
- Recommendation 3: Improve the quality of existing databases

- Recommendation 4: Evaluate the costs, effects and cost-effectiveness of the Healthy Start scheme and potential variations in provision
- Recommendation 5: Conduct new primary data collection to inform future analysis of the impact of Healthy Start on breastfeeding and demand for products supported by Healthy Start.

8.4.2 Other areas for investigation

Based on our evaluation, topics that require investigation are:

1. The impact of Healthy Start on infant feeding – the IFS 2010 indicates that, at all time points, women who are registered for Healthy Start are less likely to breastfeed than either women who think they are eligible but not registered or those who have never worked. This could be indicative of a negative effect of Healthy Start on breastfeeding or it may be due to confounding variables such as socio-economic status or age. We recommend that the Healthy Start analysis in the IFS is retained and further developed.
2. The acceptability, effectiveness and cost-effectiveness of universal administration of Healthy Start vitamins – this could include the acceptability of vitamin supplements to women, especially during pregnancy when women may be concerned about the effects of medication on the developing fetus as well as the effectiveness. An alternative approach would be to address the acceptability, effectiveness and cost-effectiveness of universal supplementation with vitamin D only. Any study on vitamin supplements should wait until SACN's working group on Vitamin D has reported its findings in autumn 2014.
3. The impact of local arrangements for scheme support. Our evaluation found huge diversity in local arrangements and a few good practice models. A systematic approach to mapping different models to identify those which are most successful would be helpful.

8.5 Dissemination plan

Summaries of the findings of this evaluation will be circulated to all those who participated in the research via the individuals and organisations who helped with the planning of the workshops, focus groups, telephone interviews and the key informant user panel. This report will be circulated widely using the networks developed through the various aspects of the evaluation, for example respondents of the electronic consultation who provided e-mail addresses and those attending the cross-sectoral workshops. The research team, collaborators and members of the Project Advisory Group all have user, professional and/or academic networks which will be used to circulate this report. As stated in the study proposal, articles will be written for women's magazines. To reach as many relevant health professionals as possible the findings will be presented at national health professional conferences (e.g. Community Practitioner and Health Visitor Association and the Royal College of Midwives conferences) and papers written for widely-read professional journals. In addition, academic papers will be submitted for publication in highly-respected peer-reviewed journals.

APPENDICES

Appendix 1: Research Team, Project Collaborators and Project Advisory Group

Research Team

University of York Team

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Project collaborators

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Francesca Entwistle, Principal Lecturer, Learning and Teaching Institute, University of Hertfordshire
Jenny McLeish, Freelance researcher and writer on disadvantaged pregnant women, children and families
Rose McCarthy, Refugee Council, Leeds
Victoria Williams, Director, Food Matters, Brighton. www.foodmatters.org

Project Advisory Group

Obi Amadi, Lead Professional Officer, Community Practitioner and Health Visitor Association
Karen Bollan, Health Equalities Alliance
Jonathan Bradshaw, Professor, Associate Director, Social Policy Research Unit, University of York
Elizabeth Dowler (chair), Professor, Department of Sociology, University of Warwick
Helen Duncan, Programme Director, Chimat
Sue Macdonald, Education and Research Manager, Royal College of Midwives
Richard Parish, Professor, Chief Executive, Royal Society for Public Health
Geoff Rayner, Independent Consultant in Food Policy
Heema Shukla, Chair, Food & Nutrition Group, UKPHA
Sally Tedstone, Development Manager, Breastfeeding Manifesto Coalition

Appendix 2: Study protocol and project plan

Summary

Healthy Start is a government initiative to encourage pregnant women and families from low-income groups to eat a more nutritious diet and to enable health professionals to identify and advise potentially vulnerable women earlier in their pregnancies. This study aims to find out how the scheme is working, how it can be improved and how future research can address the economics. The study entails literature reviews to see if there are lessons to be learned from similar schemes and a review of existing data to see how to answer the economic questions. The practical element of the research is made up of qualitative research incorporating a survey and focus groups with midwives, health visitors, and children's centre staff to find out their views of the benefits and problems with the scheme, and workshops with women to find out what they think of the scheme and how it is working and whether it has had any effect on their health behaviours. Participants will include women who find it difficult to access the scheme such as those who do not speak English, teenagers and women living in rural areas. The findings will inform recommendations for how the scheme could be improved. To ensure the recommendations are practical, two workshops will be held with participants who have an interest in the scheme including a broad range of health and social care practitioners, policy-makers, commissioners, and representatives from voluntary and independent sectors. Findings will be disseminated to the Department of Health (funders), policy-makers, study participants, and wider consumer, practitioner and academic audiences.

Aims and objectives

Aims

The aims of the research are to give a real life view of the operation of the Healthy Start scheme within disadvantaged communities; to provide evidence to inform its improved operation; and to test the feasibility of conducting an economic analysis.

Objectives

The specific research objectives are to:

1. Review relevant qualitative literature to provide contextual information on food support schemes and update our existing quantitative Food Support Review;
2. Review economic literature related to the impact of vouchers on the demand for healthy eating and breastfeeding to a) understand substantive results and b) critically appraise the types of data and range of techniques that could be used to evaluate the impact of Healthy Start on the demand for different foods and other household goods and services in England;
3. Conduct qualitative research to understand operational issues relating to Healthy Start from the perspective of health and other professionals and user and advocacy groups, and to understand the perspectives and experiences of women from a wide range of relevant groups including perceived advantages and disadvantages of vouchers and buying behavior;
4. Review existing national routine databases, Healthy Start datasets and, if possible, data held by leading supermarkets, to judge their relevance to developing explanatory models of a) the demand for vouchers and b) the demand for Healthy Start products (fruit and vegetables, vitamins, formula milk and breastfeeding) and other household goods and services, including non-healthy items;
5. Develop a justified plan for future research on:
 - a) the advantages, disadvantages and feasibility of alternative empirical approaches to addressing an economic analysis of household demand (expenditure) with a view to evaluating Healthy Start;
 - b) aspects of the operation of the scheme that might need further examination;

6. Synthesise the information gained and to draw on the experience of practitioners and users of the scheme to identify barriers and strategies to improve the operation of Healthy Start; and develop networks to promote the rapid and effective dissemination of findings that could enhance local operation of the scheme.

Plan of investigation

Multiple methods will be used to address the wide range of research questions and methodological challenges. There will be four main components.

1. Literature reviews

Three narrative literature reviews will be undertaken:

- a) Review of qualitative literature to examine women's and practitioners' views and experiences of food support schemes to identify characteristics likely to enhance effectiveness and inform other components of the study.
- b) Update of our Food Support Review [2] to provide information on the effectiveness of food support programmes that aim to have an impact on outcomes related to maternal and infant nutrition.
- c) Review of economic literature to address research methods and substantive findings related to evaluating food/milk-related financial incentives on healthy eating, breastfeeding and household expenditure in low-income families.

Structured approaches to identification, analysis and synthesis will be used to produce methodologically robust narrative reviews. An experienced information officer from the Centre for Reviews and Dissemination (York) will modify the search strategy from our previous review to update it and include relevant qualitative and economic studies.

2. Multi-method study of views and experiences

There are three elements to this component: a national consultation and in-depth work with practitioners and women to address the research aims and objective three. The Brunel team will provide input to the qualitative work to ensure relevant Health Economic issues are addressed. The three main elements are:

- a) Focus group discussions with practitioners will be conducted in two sentinel sites, London and Yorkshire & Humber Regions, selected to offer a large population base and extensive diversity. Six focus groups with practitioners (e.g. midwives, health visitors, children's centre staff) will be conducted, each with c.6 participants who work with disadvantaged, vulnerable and hard-to-reach women. The purpose is threefold; to inform the questions of the electronic questionnaire; to capture the perspectives of those who may not be able to access the national electronic questionnaire, and to gain in-depth data about contextual factors, in specific localities and with specific groups of recipients. Recruitment will be facilitated by our collaborators and stakeholders and will ensure that participants include practitioners from areas of high and low voucher and vitamins uptake (using regional-level data from the Healthy Start database). The focus groups will be facilitated by members of the project team with support from collaborators, using topic guides based on the research aims and objectives, the findings of the literature reviews and the views of the research collaborators, stakeholders and the user panel of key informants (see below);
- b) National consultation to elicit the views of professionals, practitioners and service user representatives. Methods will be adapted from previous work. A semi-structured web-based electronic questionnaire will be developed and tested based on the research aims and

objectives, the literature reviews, findings from the practitioner focus groups, input from collaborators and stakeholders who represent practitioners and service user groups and the user panel of key informants. We will distribute the questionnaire through relevant professional, advocacy and service user networks, supported by our collaborators and stakeholders. Based on previous experience, we aim to achieve around 500 responses from health and social care practitioners, service commissioners and managers, and user representatives. This approach will establish a community of interest who can be engaged in later dissemination;

- c) In-depth work with women will be conducted in the same sentinel sites as described above for the practitioner focus groups. Recruitment will be facilitated in each site by our collaborators and stakeholders, who will identify existing groups of women from sites including Children's Centres, Healthy Living Centres, health centres, Teenage Pregnancy Midwifery Network. A purposive sampling approach will be used to ensure that participants include women from areas of high and low voucher and vitamins uptake (using regional-level data from the Healthy Start database), and including recipient and non-recipient eligible and borderline eligible women and children at all stages from pregnancy, postpartum, milk feeding, weaning, and up to age 4. We will include women whose children have recently turned 4 to explore changes since their vouchers stopped. We will include women from specific vulnerable groups such as teenagers, disadvantaged minority ethnic groups, including non-English speakers, and those from urban and rural areas of high socio-economic disadvantage. See attached for sampling matrix which will be monitored and modified as necessary. We will need to access and gain the trust of women from low-income and vulnerable groups, including those with less formal education and who may not speak English. Women may be anxious about being compromised in the eyes of health or social care professionals, or in regard to their benefits. Our team therefore includes Food Matters, an NGO working on food policy issues with expertise in food access and participation. They will facilitate 10 workshops (c.10 women each) with an experienced researcher as observer and co-facilitator. A variety of Participatory Appraisal tools and activities will be used to encourage interactions that allow everyone to feel confident to share their knowledge and experience and to gain new understanding about their own situation. The workshops will be engaging and fun, whilst also being rigorous and robust and will allow everyone to contribute whatever their background. Food Matters will provide the project team with a summary of findings from the workshops. A further 3 focus group discussions, each of c.6 non-English speaking women will be co-facilitated by the project team and a practitioner collaborator and supported by interpreters; we have experience in conducting groups in this way. Focus groups will be recorded as described above for practitioner focus groups.

User panel of key informants

We recognise that this topic may be hard for women to discuss in a one-off session, therefore user perspectives will be further represented by a user panel of key informants. This will be established by two collaborators in Leeds, one service user (McCarthy) and one midwife working with vulnerable women (Bennett); this group of 6 -10 women will be recruited to represent women of different ages, backgrounds, and stages in the Healthy Start cycle, and will be asked to meet about four times during the life of the project to give a more in-depth view of the issues and to advise methods, analysis and dissemination. We will seek to recruit a similar men's group to give father's perspectives.

Analysis of the multi-method study

Quantitative analysis: responses to the electronic questionnaire will be analysed using descriptive statistics. Where relevant and possible within the limitations of sample size and distribution these will be stratified according to locality, sector and practitioner role.

Qualitative analysis: Content analysis will be used for the qualitative material from the questionnaire, focus groups and workshops; analysis will be structured around the key research questions. Practitioner focus groups will be recorded and listened to by two members of the project team noting key topics and themes, and salient quotes. Women's workshops: the facilitator will provide a report based on flipchart records and post-it notes and using women's own words. These will be analysed along with the field notes made by the observer. All data will be stored securely in accordance with Data Protection and Freedom of Information Acts.

3. Economic Feasibility Study

The economic feasibility study has three components:

- a) In consultation with DH, contact will be made with four major supermarkets who officially participate in the scheme and one that does not. Interviews will explore: how much is known, and could be known, about the spending habits of those presenting Healthy Start vouchers; ability to link purchases to individuals over time, processing and likelihood of accessing such data for further research; and perceived costs and benefits of the scheme to the supermarket. We will seek to establish whether e.g. those with different values of vouchers have different expenditure patterns for the Healthy Start products;
- b) The datasets included for review will be a) the 30+ databases identified by Dyson et al.[4] which include National Diet & Nutrition Surveys and Expenditure & Food Survey (EFS) b) 4 Healthy Start datasets (voucher agency, benefit agency, NHS fraud, and registered commercial retailers) c) data held supermarkets. Data will be considered at two levels, individual and small area, and in terms of alternative specifications for a range of dependent variables (e.g. fruit/vegetable consumption, breastfeeding and different types of expenditure), key explanatory variables (e.g. quantity and value of vouchers used, income) and 'control' variables (e.g. age, ethnicity). We will consider the advantages and disadvantages, including bias, of the different types of data available, ethical issues of access and the ability to link existing datasets;
- c) Depending on characteristics of the data and data linkage possibilities, we will undertake exploratory analyses of demand, testing the feasibility of applying robust econometric methods used to assess similar schemes in the past [12-17]. If this is not possible, we still expect to be able to undertake analysis of household expenditure over time. The more information available from Healthy Start datasets, the more likely it is that we will be able to specify a relevant sample from which to consider explaining change over time using routine data e.g. the EFS.

4. Cross-sectoral workshops

Two structured cross-sectoral, 'diagonal slice' workshops will be conducted, one in each of the sentinel sites, each including around 30 participants ranging from very senior to junior, and from all relevant sectors to include a broad range of health and social care practitioners, policy-makers, commissioners, voluntary and independent sectors including those from areas where the scheme is working well. The purpose is to add context and explanation to ensure a real life view of the

operation of the scheme and suggest positive strategies for improvement, thereby addressing the three main aims in the brief and to help clarify the most useful economic questions for policy-making and further research. Preliminary findings of all components of the project will be presented, and participants will be asked to work in a structured process to format recommendations. Workshop discussions will be captured on flipcharts and recorded. Recording will be analysed using the same process as described above for the practitioner workshops.

Finally, findings from all components will be synthesised, providing responses to the research questions, perceptions of barriers and recommendations for positive strategies illuminated by participant explanations and quotes.

Dissemination of findings

The primary purpose of this research is to inform policy and therefore our principal aim is to ensure that our findings are presented to DH and other policy colleagues in a timely and usable form. An interim report will be presented at the end of Month 9 to include findings from the literature reviews, progress reports on data collection from professionals, progress reports of relevance and accessibility of data for economic analysis, and R&D processes for data collection from women. A clearly written and accessible final report will be presented on completion. We propose a half-day event in which DH colleagues and the research team meet to discuss the findings and launch the final report.

Regional and local dissemination is also important. Our collaborators and stakeholders have agreed to support dissemination through their constituencies, including national network of regional Healthy Start co-ordinators. The cross-sectoral workshops held towards the end of the project will engage a broad range of health and social care practitioners, policy-makers, commissioners, voluntary and independent sectors in advising positive strategies. We have done this successfully in previous research, with impact not only on the relevance of the findings, but also on aiding ownership of the report and dissemination of the findings.

Access to findings will be offered to all research participants, as is our normal practice. We will use the same communication networks and agencies that we will be using for data collection to ensure rapid dissemination to all the key professional and voluntary sector networks.

Academic, professional and service user publications will be prepared. At least five substantive publications are planned (see Section 9), targeted at journals and conferences with the most appropriate audiences, and including versions for professional and service user communities. A research agenda will be developed, to include a proposal for future economic research.

Project plan

Literature reviews (review of qualitative studies, update review of quantitative studies, economics review). Jan – September 2011	
Jan – Feb 2011	Agree protocols, modify search strategy, conduct searches
March – June 2011	Screen searches, retrieve papers, extract data and appraise methodology
July – Sept 2011	Synthesise and write reviews
Outputs: two new narrative reviews, one updated narrative review	
Renfrew (MJR), Fox-Rusby (JFR), Green (JMG), McCormick (staff - FM), McFadden (AM), Pokhrel (SB), Diritsaki (staff - MD)	
Ethics and governance processes. Jan – September 2011	
Jan – Feb 2011	Explore processes required for practitioner focus groups complete ethics and governance forms and supporting material as necessary
March – May 2011	Complete ethics and governance forms and supporting material for workshops and focus groups with women
June – September 2011	Submit ethics application for internal and external approval, apply for research governance approval
Outputs: expect approvals to start empirical work in March 2011(practitioners); October 2011 (women)	
MJR, JMG, AM	
Development of electronic questionnaire and topic guides, conduct practitioners focus groups January – September 2011	
Jan – April 2011	Devise topic guides, plan and recruit for focus groups, conduct focus groups, set up e-mail lists for circulation of electronic consultation
April – July 2011	Conduct preliminary analysis of focus groups, devise online version of questionnaire to pilot, amend and circulate. Send reminders for questionnaire,
August - Sept 2011	Conduct analysis of practitioner consultation and focus groups
Outputs: Questionnaires and topic guides developed and tested. Analysis of national consultation and practitioner focus groups.	
MJR, JMG, JFR, AM, FM, Atchinson (RA), Entwistle (FE)	
Interviews with supermarkets. March – May 2011	
March – May 2011	Contact DH to agree process of contacting supermarkets, develop interview schedule, contact and gain interviews, analyse results.
Outputs: Analysis of supermarket interviews	
JFR, MD, SP, MJR	
Review of Healthy Start datasets. January - July 2011	
Jan 2011	Work with DH to access the 4 Healthy Start datasets
Feb – April 2011	Understand files and possibilities for linkages
May – July 2011	Summarise statistics on use, including analysis of missing data
Outputs: Analysis of Healthy Start datasets.	
SP, JFR, MD, AM, MJR	
Review of existing national datasets for economic variables. August 2011-January 2012	
August-Sept 2011	Collect updated material following Dyson et al report
Oct – Nov 2011	Update Dyson et al report for relevant economic variable
Dec 2011– Jan 2012	Consider methods of linking all data sets reviewed.
Outputs: Preparation for data analysis	
MD, SP, JFR	
Economic data preparation and analysis. October 2011- April 2012	
Oct – Dec 2011	Analysis planning
Jan – April 2012	Exploratory analysis
Outputs: Analysis of existing economics data	

MD, SP, JFR, MJR	
Workshops with women. October 2011 – April 2012	
Oct 2011	Refine topic guides, plan and recruit to groups
Nov 2011 – April 2012	Ongoing planning, recruitment and running workshops; analyse reports and field notes, and synthesise analysis of practitioners' and women's data
Outputs: analysis of women's views and experiences	
MJR, JMG, Williams (VW), AM, FM, RA, FE, SB, RM	
Cross-sectoral workshops. December 2011 – April 2012	
Dec 2011	Identify participants and plan workshops
Jan – April 2012	Invite participants, run workshops and analyse workshop data.
Outputs: Interpretation of findings from previous stages, recommendations.	
MJR, JMG, JFR, AM, FM, SP, MD, FE, RA, Bennett (SB), McCarthy (RM)	
User panel January, May, September 2011, February 2012	
Jan 2011	Recruit members, plan and conduct 1 st meeting
May, Sept 2011, Feb 2012	Plan and conduct meetings
Outputs: Views of scheme and conduct of research, interpretation of study findings	
JMG, AM, RM, SB	
Interim and final report preparation. September 2011 and April – June 2012	
9: Interim report: first draft of literature review and progress towards ethics and governance approvals	
16-18 Synthesising findings and writing reports: Full report for peer review, month 18	
All team members	

Ongoing and following completion: preparation of papers for publication in academic, professional journals, user publications, conference presentations, dissemination through networks established.

Appendix 3: Search strategy used in MEDLINE database

Date coverage: October 2004 to December week 4 2010
Search date: 12/1/11
Records retrieved: 1871

1. wic.ti,ab. (689)
2. (special supplemental nutrition program for women infants and children).ti,ab. (244)
3. (supplemental nutrition program for women infants and children).ti,ab. (261)
4. (supplemental food program for women infants and children).ti,ab. (90)
5. (women infants and children supplemental nutrition program).ti,ab. (4)
6. (women infants and children supplemental food program).ti,ab. (4)
7. (women infants and children).ti,ab. (586)
8. (food and nutrition service).ti,ab. (32)
9. (expanded food and nutrition education program).ti,ab. (35)
10. efnep.ti,ab. (22)
11. welfare food scheme.ti,ab. (6)
12. healthy start.ti,ab. (127)
13. sure start.ti,ab. (68)
14. surestart.ti,ab. (5)
15. lifeskills in food education.ti,ab. (0)
16. nutrition education network.ti,ab. (5)
17. nutrition integrity.ti,ab. (5)
18. (food and money basics).ti,ab. (0)
19. food stamp program.ti,ab. (73)
20. community mothers programme.ti,ab. (4)
21. protection maternelle et infantile.ti,ab. (7)
22. protection maternelle et infantile.ot,ab. (75)
23. healthstart.ti,ab. (7)
24. farmers market nutrition program\$.ti,ab. (7)
25. 1 or 2 or 3 or 4 or 5 or 6 or 7 or 8 or 9 or 10 or 11 or 12 or 13 or 14 or 15 or 16 or 17 or 18 or 19 or 20 or 21 or 22 or 23 or 24 (1302)
26. (food adj2 (stamp\$ or voucher\$ or token\$ or coupon\$ or cash or bank\$ or pantry or pantries)).ti,ab. (378)
27. food scheme\$.ti,ab. (9)
28. food program\$.ti,ab. (308)
29. (food adj2 assistance).ti,ab. (155)
30. food\$ insecurity.ti,ab. (532)
31. (food adj2 support\$).ti,ab. (171)
32. welfare food\$.ti,ab. (17)
33. community food\$.ti,ab. (58)
34. (feeding adj2 (program\$ or scheme\$ or project\$)).ti,ab. (762)
35. food services/ (3527)
36. supermarket voucher\$.ti,ab. (1)
37. (soup kitchen\$ or collective kitchen\$ or community kitchen\$).ti,ab. (80)
38. ((food or diet\$ or nutrition) adj2 intervention).ti,ab. (3430)
39. (26 or 27 or 28 or 29 or 30 or 31 or 32 or 33 or 34 or 35 or 36 or 37 or 38) and (mother or mothers or maternal or childbear\$ or pregnant or pregnancy or breastfeed\$ or breast feed\$ or lactating or lactation or periconcept\$ or preconcept\$ or postnatal or prenatal or postpartum).ti,ab. (837)
40. maternal nutrition/ (0)
41. (maternal welfare/ or maternal health services/) and (food\$ or diet\$ or nutrition or nutrient\$).ti,ab. (645)

42. (prenatal care/ or preconception care/) and (food\$ or diet\$ or nutrition or nutrient\$).ti,ab. (1035)
43. ((malnourish\$ or undernourish\$ or undernutrition) adj2 (mother or mothers or maternal or childbear\$ or pregnant or pregnancy or breastfeed\$ or breast feed\$ or lactating or lactation or periconcept\$ or preconcept\$ or postnatal or prenatal or postpartum)).ti,ab. (791)
44. (malnutrition/ or deficiency diseases/) and (mother or mothers or maternal or childbear\$ or pregnant or pregnancy or breastfeed\$ or breast feed\$ or lactating or lactation or periconcept\$ or preconcept\$ or postnatal or prenatal or postpartum).ti,ab. (881)
45. (fruit/ or vegetables/) and (mother or mothers or maternal or childbear\$ or pregnant or pregnancy or breastfeed\$ or breast feed\$ or lactating or lactation or periconcept\$ or preconcept\$ or postnatal or prenatal or postpartum).ti,ab. (345)
46. 40 or 41 or 42 or 43 or 44 or 45 (3396)
47. exp Health Education/ (116410)
48. exp Health Promotion/ (40243)
49. exp Health Behavior/ (73428)
50. exp Health Knowledge, Attitudes, Practice/ (51451)
51. exp communications media/ (185197)
52. (television or video or radio or internet or book\$ or booklet\$ or leaflet\$ or pamphlet\$ or newspaper\$ or magazine\$).ti,ab. (110404)
53. counseling/ or (counselling or advice).ti,ab. (55078)
54. health information.ti,ab. (7530)
55. 47 or 48 or 49 or 50 or 51 or 52 or 53 or 54 (545041)
56. (mother or mothers or maternal or childbear\$ or pregnant or pregnancy or breastfeed\$ or breast feed\$ or lactating or lactation or periconcept\$ or preconcept\$ or postnatal or prenatal or postpartum).ti,ab,sh. (827594)
57. (food or diet or nutrition or nutrient\$).ti,ab. (412695)
58. vitamin a/ or vitamin c/ or vitamin d/ or vitamin b6/ or dietary, iron/ or zinc/ or dietary, calcium/ or folates.ti,ab. or folic acid/ or magnesium/ or selenium/ or dietary, fats/ or dietary, proteins/ or dietary, carbohydrates/ or micronutrient\$.ti,ab. or macronutrient\$.ti,ab. or multivitamin\$.ti,ab. (266865)
59. 55 and 56 and (57 or 58) (3197)
60. ((nutrition or food or diet\$) adjeducat\$).ti,ab. and 56 (427)
61. 59 or 60 (3406)
62. 25 or 39 or 46 or 61 (7758)
63. animals/ (4576743)
64. human/ (11301138)
65. 63 not (63 and 64) (3392822)
66. 62 not 65 (6910)
67. expasia/ or expafrica/ or exp south america/ (586007)
68. 66 not 67 (5154)
69. (comment or letter or editorial).pt. (1022957)
70. 68 not 69 (5006)
71. (2011* or 2010* or 2009* or 2008* or 2007* or 2006* or 2005* or 200412* or 200411* or 200410*).ed. (4190127)
72. 70 and 71 (1871)

Appendix 3A: Qualitative review data extraction forms

First author Year Location	Purpose of study	Study design and method	Participants	Data generation	Data analysis	Main findings/themes relevant to Healthy Start	Study authors' conclusions – relevant to Healthy Start
(Black et al. 2009) US Maryland	To examine participants' responses to food package changes, to identify racial/ethnic differences and to assess costs	Mixed methods Cross-sectional survey and focus groups	36 women participated in 6 focus groups. Eligibility criteria – women, 18 years or older, English or Spanish speaking and either pregnant or the primary caregiver to a WIC-enrolled infant or child. Participant characteristics for the focus group participants are not reported separately. Characteristics of whole study sample of 257 women: Ethnically diverse, age range 18 to 64 years (mean 28 years), lived in rural, suburban and urban locations, majority had completed high school, nearly half were employed, a third were married and just over half resided with the father of the child enrolled in WIC. Participants had an average of 2 children (range 0-7). 79 were receiving medical assistance for their child and 32% for themselves 32% were receiving food stamps and 9% were receiving Temporary Cash Assistance	Six focus groups conducted by graduate students in Social work who had training and supervision in qualitative methods Four focus groups conducted in English and two in Spanish Each focus group included a transcriber who recorded (?audio) participant comments for analysis Topic guides were developed from the food questionnaires used in the survey but used open-ended questions Participants were encouraged to discuss reasons for their food preferences and reactions to anticipated changes to the food package.	Data were transcribed. Investigators identified themes from responses to questions and probes for the topic guides and topics raised by participants. A matrix approach was used to compare responses within and across groups. Representative quotes were selected to clarify, explain findings or aid interpretation.	<i>Fruit and vegetables</i> The anticipated revised WIC food package would limit 100% juice, include commercial baby food fruits and vegetables for older infants and cash-value vouchers (for fresh, canned, dried or frozen fruits and vegetables) for mothers and children. Focus group findings confirmed survey findings (all women and children consumed fruits (including 100% juice) and vegetables fresh fruit and veg most popular but some used canned or frozen, infants consumed fruit and vegetables commonly in form of commercial baby foods). Cost and taste influenced women's choices of fruit and vegetables They thought fresh fruit and vegetables were most healthy Some used frozen/canned for convenience but preferred to give their children fresh. Many women would buy more fruit and vegetables (fresh, canned, frozen or jarred) if WIC provided vouchers.	Women reported they would increase fruit and vegetable consumption for themselves and their children as a result of vouchers being added to the WIC food packages High use of commercial baby foods that include fruit and vegetables for 6-11 month infants Inclusion of vouchers should be accompanied by nutrition education Impact of changes to the program should be evaluated Other (WIC) agencies should evaluate their participants' food preferences and local food costs

First author Year Location	Purpose of study	Study design and method	Participants	Data generation	Data analysis	Main findings/themes relevant to Healthy Start	Study authors' conclusions – relevant to Healthy Start
(Garton, 2008) UK	To find out how much health visitors and nurses know about children's bone health and whether they are able to identify the types of nutritional resources that are needed	Qualitative Focus groups	2 focus groups with a total of 22 nurses and health visitors 15 health visitors 3 practice nurses 2 nursery nurses 1 NCT(not explained) nurse 1 nursing journal editor	No details given	No details given	<p>Participants spend a significant proportion of their working time giving nutritional advice (20%-50%)</p> <p>Main topics – weaning, children's milks, infant formula vs breastfeeding, fussy eaters, failure to thrive, concerns about weight.</p> <p>All health care professionals were aware that children's bone quality influences bone health in later life but not that 90% of full genetic potential for bone strength is achieved before adulthood.</p> <p>High degree of awareness of importance of calcium, vitamin D, exercise and healthy balanced diet.</p> <p>Participants knew the majority of food sources for vitamin D however there was a misconception that dairy products contain vitamin D</p> <p>Most Health Visitors were aware of government guidance on vitamin D supplements for all expectant and breastfeeding mothers and children under 5 years, and of the Healthy Start initiative to provide free vitamins to those who qualify for Healthy Start.</p> <p>Participants reported confusion about how to get hold of the supplements and how to supply them. Health Visitors reported there were no clear guidelines on how each local PCT could ensure that adequate stores were available at all clinics for mothers and babies.</p> <p>Few participants were aware of the Dairy Council's 3-a-Day campaign (3 portions of dairy foods) for bone health.</p>	<p>Giving nutrition advice to parents with children under 5 takes up a significant part of Health Visitors', practice nurses' and community nurses' time.</p> <p>Health care professionals have kept up to date on key requirements for bone nutrients</p> <p>More education is needed on dietary sources of vitamin D</p> <p>The government needs to give clear guidelines about its initiatives for vitamin D supplements for mothers, and children aged under 5 years.</p> <p>As dairy products are a major source of calcium, it is disappointing that the Dairy Council's 3-a-Day message has not got through.</p>

First author Year Location	Purpose of study	Study design and method	Participants	Data generation	Data analysis	Main findings/themes relevant to Healthy Start	Study authors' conclusions – relevant to Healthy Start
(Grace et al. 2007) US (Oregon)	To examine food stamp clients' grocery shopping habits and their perceptions of farmers' markets	Survey using interviews	<p>108 food stamp clients were interviewed at four Department of Human Services (DHS) offices that were close to farmers' markets.</p> <p>Convenience sample – participants were either self-selected, volunteering in response to announcements at DHS offices, or approached while seated in DHS waiting rooms.</p> <p>80/108 (74%) female</p> <p>70/108 (65%) lived in family households</p> <p>38/108 (35%) single parent households, split almost evenly between single parents and couples</p> <p>More than half of the family households had children under 3 years old</p>	<p>Survey tool covered four topic areas: Farmers' market awareness; experience, mealtime routines; grocery shopping habits; advice for farmers' markets organisers. The tool contained 14 closed demographic questions and 17 discussion questions</p>	Not reported	<p>The best avenue for promoting food resources to low-income shoppers are local DHS offices, DHS food stamp mailings, grocery store circulars, newspapers, advertisements on local transport and community boards. Limited hours and locations were barriers to using farmers' markets.</p> <p>Convenience followed by price were the top motivations for choosing a grocery store. Convenience was interpreted as 24-hour access, one stop shop or close to easily accessible by public transport. More than half of the respondents walked, cycled or used public transport to get to a grocery store.</p> <p>Most respondents did not shop seasonally and valued purchasing foods they limered all year.</p> <p>Some respondents would have liked to include more fruit and vegetables in their diets but barriers were cost, lack of time and/or cooking skills.</p> <p>Respondents were more likely to purchase fresh fruit but vegetables were more likely to be frozen or canned. Fresh vegetables were perceived as inconvenient because they required too much storage space, spoiled too quickly or took too much time to prepare</p>	<p>Shoppers are influenced most by convenience and price.</p> <p>Food stamp shoppers would benefit from techniques for meal planning, shopping and cooking that require little more time than is currently spent on seeking discounts and preparing packaged foods.</p> <p>Findings demonstrate a desire by some respondents to include more fruit and vegetables in their diets and barriers to doing so</p>

First author Year Location	Purpose of study	Study design and method	Participants	Data generation	Data analysis	Main findings/themes relevant to Healthy Start	Study authors' conclusions – relevant to Healthy Start
(Hills et al. 2006) Devon and Cornwall	To evaluate the early impact on beneficiaries, health professionals, retailers and contractors of phase one start of Healthy Start	Mixed methods rapid evaluation Qualitative component comprised five case studies Qualitative interviews with small samples of beneficiaries, health professionals, retailers and contractors	Health Professionals (n=42) 12 Service managers 8 Midwives 10 Health visitors 2 Health visitor assistants 2 Community public health practitioners 1 Local PCT lead 1 Health promotion service staff 3 Sure start workers 1 School nurse 1 Youth worker 1 health centre receptionist Beneficiaries (n=17) Retailers (n=53)	Individual face-to-face interviews	Not reported	<p>Recommendations</p> <p>Health professionals should systematically link up with local services to disseminate information about Healthy Start and access beneficiaries to learn about nutrition and diet;</p> <p>To reinforce healthy eating messages, health professionals must encourage beneficiaries to take part in relevant practical, experiential activities locally;</p> <p>Clearer information about eligibility must be provided particularly for complicated cases where people move on and off benefits;</p> <p>To ensure access and choice to retailers, additional information about registered retailers should be provided. For example, make reference to the website in the application leaflet in the "Where can I use vouchers?" section;</p> <p>Marketing of what is on offer both about local participating retailers and places to learn about healthy eating, should include providing information in GP surgeries, town halls, libraries etc.;</p> <p>Retail staff should be trained to minimise the potential embarrassment or stigma of producing Healthy Start vouchers.</p> <p>From the interviews with health professionals, Hills et al (2006) recommended that:</p> <p>At a strategic level the Department of Health should lead on communications and training strategies to ensure key health professionals, local retailers and other related professionals have good knowledge of Healthy Start;</p> <p>At a more practical level the application form needs to state clearly where it should be sent;</p> <p>Health professionals need to be able to access supplies of application leaflets and other information about Healthy Start;</p> <p>Clarification is needed that it is not necessary that health professionals provide their personal registration number on the application form as long as they provide a surgery stamp or their work address and postcode;</p> <p>To ensure that health professionals are aware of the eligibility of all groups, especially the under 18s, the eligibility criteria should be made more explicit in information provided;</p> <p>Booking interviews with midwives are effective in reaching beneficiaries. This practice should be implemented routinely. This needs to be supported by other means (for example by Health Visitors) to ensure eligible women do not fall through the gaps.</p>	See recommendations for roll out of Healthy Start nationally

First author Year Location	Purpose of study	Study design and method	Participants	Data generation	Data analysis	Main findings/themes relevant to Healthy Start	Study authors' conclusions – relevant to Healthy Start
(Holmes et al. 2009) US New York	To explore reasons for high rates of formula supplementation of breastfeeding newborn infants enrolled in WIC and the limited use of the WIC expanded food package	Qualitative in depth interviews	<p>Mothers in the WIC programme who either partially or exclusively breastfed for at least two months within the previous 18 months.</p> <p>29 mothers of which 9 were first-time mothers</p> <p>12 were African /American, 13 were white and 4 were Hispanic.</p> <p>4 were aged 20, 18 were 20 – 29 and 7 were 29 years old.</p> <p>14 were married.</p> <p>13 received infant formula in their food package at first WIC visit and 16 received the expanded food package for breastfeeding mothers. 7 of those who received infant formula were breastfeeding exclusively at the time.</p>	In –depth interviews lasting 45-60 minutes using a topic guide. Interviews took place at the mother's home or in a coffee shop.	Interviews were audio-recorded and transcribed verbatim. Thematic analysis was conducted by four researchers. 10 themes were identified	<p>Provision of infant formula influenced infant feeding decisions of mothers in the WIC programme.</p> <p>The WIC programme was viewed as supporting breastfeeding but also as encouraging supplementation with infant formula.</p> <p>Women highly valued the provision of free infant formula because it was an expensive product.</p> <p>Mothers were either unaware of the expanded food package or were not interested because it contained foods that they did not like or were difficult and time consuming to prepare.</p> <p>Misinformation about breastfeeding pervades the healthcare system and breastfeeding is not promoted as an important health goal.</p>	The WIC Programme, amongst other influences, contributes to low breastfeeding rates in WIC enrolled mothers. The expanded food package for mothers who are exclusively breastfeeding is both disliked and underutilised and free supplemental formula is rarely discouraged.

First author Year Location	Purpose of study	Study design and method	Participants	Data generation	Data analysis	Main findings/themes relevant to Healthy Start	Study authors' conclusions – relevant to Healthy Start
(Stevens, 2010) US Washington state	To explore the experience of food insecurity of young mothers (15-24 years) and identify strategies used to manage food insecure periods	Exploratory study US Household Food Security Survey, Cognitive interviewing and individual interviews	Young mothers aged 15-24 years recruited through WIC offices; an agency for homeless single and parenting women aged 13 – 25 years; teen parenting centres; Planned Parenthood Offices and snowball sampling. 21 participants Age 15–17: n=2 18-19: n=7 20-21: n=10 22-24: n=2 Age of children 0-6 months: n=6 6-12 months: n=6 1-2 years: n=7 3-6 years: n=6 Education Attending high school: n=12 Attending college: 2 High school diploma: 3 Some college: 1 Not in school and no diploma: 3 Housing Shelter: n=2 Couch surfing: 9 Living with boyfriend: 8 Living in apartment: 2	Semi-structured interviews to gather data about perspective of factors contributing to food insecurity. Interviews took place in shelters, participants' current living situations or a private room at a library	Using AtlasTI software, language and phrases were coded and then grouped into larger categories reflecting themes and patterns in the data related to factors contributing to food insecurity and coping strategies.	Women often decreased their intake or skipped meals to make sure their children could eat. At the end of the month mothers ate mostly pasta or food provided by food banks Four factors contributing to food insecurity were income, affordable sources of food, housing and transport. Access and costs of fresh fruit and vegetables were cited as barriers to good nutrition Housing was the biggest cost item and contributed to food insecurity. Women reported experiencing food insecurity and food insufficiency from time to time, and described how they prioritised their children's nutrition over their own.	Vouchers were the only means by which young mothers could afford to include fruit and vegetables in their diets. Communities should consider encouraging community gardens where the produce is provided to food banks Local government should provide incentives for grocery chains to bring affordable food to low-income neighbourhoods

Appendix 4: Table of studies excluded from the Food Support Review update

	Citation	Participants	Intervention	Design	Outcomes	Decision
1	(Hininger et al. 2004)	France (Grenoble, Lyon) Apparently healthy pregnant women receiving prenatal care	Combined (iron-free) micronutrient supplementation vs. placebo	RCT N=100 65 completed the study Compliance ≥80%	Nutrient status at term; birth weight There are no results for socially disadvantaged women Nutrient levels higher in intervention group; birthweights 10% higher in the intervention group (birthweights <2500g were not reported)	Exclude as no outcomes for our participants of interest
2	(Charles et al. 2005)	UK (Aberdeen) Pregnant women with diverse SES Smoking at booking is reported	1977 were allocated to placebo, 466 to folic acid 200 mg/day and 485 to folic acid 5 mg/day	Reanalysis of data from RCT Aberdeen Folate Supplementation Trial (1966–67) N=2928	Not reported by income group or by smoking at booking Folic acid supplementation was not associated with any difference in mean birthweight, placental weight or gestational age. When combined with trials in the Cochrane review folic acid at high doses was associated with reduced risk of low birthweight (pooled relative risk 0.73 [95% CI 0.53, 0.99]). We found no conclusive evidence of benefit for folic acid supplementation in pregnant women given from time of booking onwards	Exclude as no outcomes for our participants of interest
3	(de Groot et al. 2004) (de Groot et al. 2004; de Groot et al. 2004a)	Netherlands (South-East) Healthy, white pregnant women SES of participants is not reported Smoking at week 14 is reported	Daily, ≥25 g of either an α -linolenic acid (ALA)-enriched, high-linoleic acid (LA) margarine (experimental group) or a high-LA margarine without ALA (control group) from week 14 of pregnancy until delivery	RCT N=79 enrolled; 58 (29 in each group) completed the study	Plasma phospholipid fatty acid analyses at weeks 14, 26, and 36 of pregnancy, at delivery, and at 32 wk postpartum. Umbilical cord blood and vascular tissue samples were collected to study neonatal fatty acid status also. Pregnancy outcome variables (including birthweight) were assessed Some differences in fatty acid levels were noted. No significant differences in pregnancy outcome variables remained after multiple regression analysis. There are no results for socially disadvantaged women	Exclude from HS FSR as no outcomes for our participants of interest

	Citation	Participants	Intervention	Design	Outcomes	Decision
4	(López-Torres et al. 2007)	Abstract (English) states “systematic review of the evidence on the influence of omega-3 fatty acids on maternal and infant health”			The paper (Spanish) does not report a systematic review	Exclude on design
5	(Laitinen et al. 2009)	Finland (Turku) Healthy, normoglycaemic pregnant women recruited at <17 weeks gestation	Dietary counselling with probiotic capsules (diet/probiotics) N= 85, vs Dietary counselling with placebo (diet/placebo) N= 86, vs Controls (control/placebo) N=85	RCT N=256	There are no results for socially disadvantaged women “The present study demonstrated that improved blood glucose control can be achieved by dietary counselling with probiotics even in a normoglycaemic population and thus may provide potential novel means for the prophylactic and therapeutic management of glucose disorders.”	Exclude as no outcomes for our participants of interest
6	(Luoto et al. 2010)				There are no results for socially disadvantaged women “The results of the present study show that probiotic-supplemented perinatal dietary counselling could be a safe and cost-effective tool in addressing the metabolic epidemic. In view of the fact that birth size is a risk marker for later obesity, the present results are of significance for public health in demonstrating that this risk is modifiable”	Exclude no outcomes for our participants of interest
7	(Elsinga et al. 2008) (methods in Elsinga et al. 2006)	Netherlands (mainly Zuid Holland province, western Netherlands) GPs excluded women with adverse social circumstances	In 'Parents to be', preconception counselling (PCC) by their own GP was routinely offered to women aged 18 to 40 in 30 intervention practices Women in 37 matched practices were not offered PCC	RCT Randomisation was at the level of GP practice. Invitation to participate was at GPs discretion. The analysis included those receiving the intervention	There are no results for socially disadvantaged women A quarter of the women who became pregnant in the year after the invitation were invited to PCC in time (therefore three quarters were not). Knowledge of women who received PCC exceeded that of women who did not. After PCC, significantly more women started using folic acid before pregnancy (adjusted odds ratio [OR], 4.93; 95% confidence interval [CI], 2.81–8.66) and reduced alcohol use during the first 3 months of pregnancy (adjusted OR, 1.79; 95% CI, 1.08–2.97). Among the group receiving standard care, about 20% of all pregnancies ended in an adverse outcome; in the group with PCC this was 16% (OR, 0.77; 95% CI, 0.48–	Exclude as no outcomes for our participants of interest

	Citation	Participants	Intervention	Design	Outcomes	Decision
					1.22. Adverse pregnancy outcomes included miscarriage, extrauterine pregnancy, still birth, premature birth, low birth weight (<2,500 g), small for gestational age (<p2.3), and congenital anomalies	
8	(Rhodes et al. 2010)	<p>US (Boston) Pregnant women with BMI ≥ 25 and <45 kg/ m²</p> <p>Participants' ethnic group is reported (54% white); their SES is not, however 74% are classified as "education BA or higher" so this is not a socially disadvantaged group</p>	Low glycaemic load (low-GL) diet vs. low-fat diet	<p>Randomised controlled pilot trial</p> <p>N=46</p> <p>(there is a discussion of statistical power)</p>	<p>There are no results for socially disadvantaged women</p> <p>Birth weight z score - NS</p> <p>Infant anthropometric measurements – greater infant head circumference in low GL group</p> <p>Gestational duration - longer in low GL group</p> <p>Maternal weight gain and metabolic parameters – CV risk factors improved in low GL group</p>	Exclude as no outcomes for our participants of interest

Appendix 4A: Food Support Review update data extraction forms and quality appraisal

Author year country Research aim, Design Details	Participant Selection Inclusion/ Exclusion criteria	Baseline characteristics of participants	Intervention details	Results	Losses	Additional Comments
Asbee et al. 2009 US Research aim To estimate whether a programme of dietary and lifestyle counselling prevents excessive weight gain in pregnancy Study Design RCT Method of Group allocation Stratified into three groups: Group 1, underweight and normal weight (BMI>26 kg/m2) Group 2, overweight (BMI 26-30 kg/m2) Group 3, obese (BMI >30 kg/m2) Then randomised to intervention or control groups using computer- generated random allocation using numbers sealed in opaque envelopes Unit of allocation Individual women Unit of analysis Sample size calculation 61 participants in each arm to detect, with 80% power and alpha of 0.05, an increase of 25% (from 30% to 55%) of women in the	Selection Women receiving prenatal care at the study hospital Oct 2005-Apr 2007 Inclusion criteria Age 18-49 years; English and/or Spanish speaking; singleton pregnancy; prenatal care established at 6-16 weeks gestation Exclusion criteria BMI>40 kg/m2; pre- existing diabetes, untreated thyroid disease, hypertension requiring medication or other medical conditions that might affect body weight;	N = 100 Intervention group (n=57) - BMI Group 1 = 35 (61%) Group 2 = 10 (18%) Group 3 = 12 (21%) Control group (n=43) - BMI Group 1 = 25 (58%) Group 2 = 8 (19%) Group 3 = 10 (23%) Mean age in years [SD] I: 26.7 [6.0] C: 26.4 [5.0] Mean gestational age at enrolment in weeks [SD] I: 13.7 [3.6] C: 13.6 [3.2] Ethnicity African American (n) [%] I: (15) {26.3} C: (9) {21.4} Ethnicity Asian n [%] I: (3) {5.3} C: (1) {2.4} Ethnicity White n [%] I: (5) {8.8} C: (8) {19.0} Ethnicity Hispanic n [%] I: (33) {57.9} C: (23) {54.8} Ethnicity other n [%] I: (1) {1.8} C: (1) {2.4} Tobacco use none n [%] I: (51) {91.1} C: (36) {83.7} Tobacco use past n [%] I: (2) {3.6} C: (1) {2.3} Fewer than 10 cigarettes/day n [%] I: (3) {5.4} C: (6) {14.0} High school graduate or less n [%] I: (39) {68.4} C: (28) {65.1} High school graduate or	Details of intervention In addition to routine care, the intervention group received: At initial physical exam, specific attention to pre-pregnancy weight, current weight, height and BMI At the time of enrolment only, a standardised counselling session with a registered dietician including information on pregnancy-specific dietary and lifestyle choices Eat 40% carbohydrate, 30% protein, 30% fat Moderate intensity exercise 3-5 times per week IOM guidelines on appropriate weight gain during pregnancy All participants The health care provider who weighed the participant informed her whether her weight gain was at the appropriate level; praised her and advised her to continue her diet and exercise regimen if it was, and if it was not, reviewed her diet and exercise regime with her and advised changes. What the Control group got Routine prenatal care: initial physical examination and history, routine laboratory tests and visits, and a standard prenatal booklet "What to do when you're having a baby"	Statistical Techniques Chi-squared and t tests, or Fisher exact and Mann- Whitney tests to examine potential differences between the groups. Data Collection Methods BMI was calculated based on participants' self- report of pre-pregnancy weight and height measured in clinic Participants had their weight recorded at admission in labour at the study hospital Gestational weight gain within Institute of Medicine (IOM) guidelines Intervention Control (n=57) (n=43) Yes 35 (61.4%) 21 (48.8%) No 22 (38.6%) 22 (51.2%) P = 0.21 (not statistically significant) Across study groups and subgroups, nulliparous women gained more weight (36.5±14.5lb) than parous women (27.7±12.7lb), P<0.01 (weight of parous women before their first pregnancy is not reported) Overweight and obese women (Groups 2 and 3) were less likely to have gestational weight gain within IOM guidelines. The most predictive factor of having gestational weight gain within IOM guidelines was having a normal pre-pregnancy BMI Gestational weight gain within Institute of Medicine (IOM) guidelines Intervention (n=57) Yes No Group 1 28 (80%) 7 (20%) Group 2 3 (30%) 7 (70%) Group 3 4 (33%) 8 (67%) Gestational weight gain within Institute of Medicine (IOM) guidelines Control (n=43)	Losses and drop-outs 144 randomised (not reported by group) 44 excluded, because: 1 not pregnant 8 still pregnant at final analysis 2 BMI>40 kg/m2 8 delivered elsewhere 2 established prenatal care after sixteen weeks 13 had <4 prenatal visits 1 pre-existing medical condition 9 premature deliveries 100 women completed the study and have data in the analysis 57 in the intervention group 43 in the control group	Institute of Medicine (IOM) guidelines for weight gain in pregnancy used in this study were: Underweight women (BMI<19.8 kg/m2) should gain 35-45 lb during pregnancy Normal-weight women (BMI 19.8-26.0 kg/m2) should gain 25-35 lb during pregnancy Overweight - weight women (BMI 26.1-29 kg/m2) should gain 15-25 lb during pregnancy Obese women (BMI 29.1 to 39 kg/m2) should gain less than 15 lb during pregnancy Morbidly obese women (BMI >39 kg/m2) should gain no weight during pregnancy Authors conclude "it is essential at

Author year country Research aim, Design Details	Participant Selection Inclusion/	Baseline characteristics of participants	Intervention details	Results	Losses	Additional Comments
intervention group gaining weight within the IOM guidelines Sample size achieved No Outcome Measures Gestational weight gain within Institute of Medicine (IOM) guidelines Birthweight Other birth outcomes are reported	prenatal care not all received at the study hospital; fewer than four prenatal visits; delivery not at the study hospital; premature delivery (before 37 weeks)	more n {%} I: (18) {31.6} C: (15) {34.8} Gravida 3 or less n {%} I: (48) {84.1} C: (35) {81.4} Gravida 4-6 n {%} I: (7) {12.3} C: (6) {13.9} Gravida >6 n {%} I: (2) {3.6} C: (2) {4.6} Parity 0 n {%} I: (26) {45.6} C: (19) {44.2} Parity 1 or more n {%} I: (31) {54.4} C: (24) {55.8} Group Comparability at baseline Baseline demographic characteristics (age, BMI, gestational age at enrolment, race, tobacco use, level of education, gravidity, parity) found to be similar between the groups	that included counselling on diet and exercise. Routine visits included measurement and recoding of weight.	Yes No Group 1 17 (68%) 8 (32%) Group 2 2 (25%) 6 (75%) Group 3 2 (20%) 8 (80%) Birthweight: not reported by intervention group. Across groups, participants who “were not adherent to the IOM guidelines” gave birth to infants with significantly higher birthweights (adherent 3, 203.2 ± 427.2g vs. non-adherent 3, 517.4 ± 572.4g, P<0.01) Costs The authors “chose an inexpensive intervention that could be introduced easily into any obstetric practice”. Costs are not reported. Views: Not reported		each office visit to counsel all women on the importance of diet and lifestyle in weight management, but spend even more time with heavier nulliparous women”
Brough et al. 2010 Further information about participants reported in Brough et al. 2009 UK, East London Research aim To investigate the efficacy of multiple-nutrient supplementation during pregnancy in a socially deprived population in East London, UK Study Design Double-blind, placebo controlled RCT Method of Group	Selection Recruited at first (booking) antenatal appointment at one hospital and two associated community clinics Informed, written consent was obtained from all participants Non-English speaking women were	N=402 Intervention (I) n=207 Control (C) n=195 Participants reported over 50 different ethnicities (Brough et al 2009). These were reduced to five ethnic groups to report results of the trial: Ethnicity African (n) {%} I: (62) {30} C: (49) {25} Ethnicity Asian n {%} I: (18) {9} C: (24) {12} Ethnicity Caucasian n {%} I: (79) {38} C: (76) {39} Ethnicity West Indian n {%}	Details of intervention Multiple-micronutrient supplementation including 20mg Fe and 400 µg folic acid (Pregacare) from the first trimester of pregnancy What the Control group got A visually identical placebo comprising starch with an iron oxide coating All participants were instructed to take one tablet daily with food and plenty of water, from recruitment until the birth Women were recruited at booking. Follow up was at routine appointments at 20, 26	Statistical Techniques Independent two-tailed parametric t tests or two-tailed non-parametric Mann-Whitney U test to assess differences between treatment groups; Chi-squared tests for categorical associations. Hb and PCV were analysed by intention to treat. Other blood levels were available only for the subset of compliant participants (see Intervention details). Spearman’s rank correlation coefficient was used to determine associations between two numerical variables; potential associations were verified using scatter plots. Data not normally distributed were transformed logarithmically. Data were analysed for an effect of supplement and time by repeated-measures ANOVA using the general linear model with Bonferroni’s correction. Data Collection Methods Women’s height and weight were measured at booking. Blood samples were taken at booking, 26	Losses and drop-outs Reported by group. Reasons for non-compliance also reported by group. Relationship between compliance and loss to follow-up is unclear. 402 randomised I: 207, C: 195	Paper states “all tablets were provided by Vitabiotics (London, UK) and packaged to allow double blinding. Only Vitabiotics knew the code and it was not broken until statistical analysis had been completed” Paper also states “women not taking folic acid were also given 400 µg folic acid

Author year country Research aim, Design Details	Participant Selection Inclusion/	Baseline characteristics of participants	Intervention details	Results	Losses	Additional Comments
allocation Not reported Unit of allocation Individual women Unit of analysis Individual women Sample size calculation Authors state the study was powered to investigate the effect of multiple- micronutrient supplementation on birth weight (not on micronutrient status or other birth outcomes), but do not give details of the power calculation Sample size achieved Not stated Outcome Measures Birthweight Nutrient status (Fe, folate, thiamin and vitamin D) at 26 and 34 weeks gestation Women's reasons for not completing the study	only recruited if a suitable advocate was available Inclusion criteria Age 16 years or older Singleton pregnancy Exclusion criteria Gestation >13 weeks Chronic disease Use of micronutrients other than Fe and folic acid	I: (37) {18} C: (29) {15} Ethnicity Other n {%} I: (11) {5} C: (17) {9} Primigravida n {%} I: 109 {53} C: 99{51} Age in years mean [SD] I: 28.4 [5.86] C: 27.9 [6.20] Range 16-42 years Height (m) mean [SD] I: 1.64 [0.07] C: 1.64 [0.07] Weight (kg) median [IQR] I: 68.0 [68, 78] C: 67.0 [60, 77] BMI (kg/m2) median [IQR] I: 25.5 [22.1, 28.7] C: 24.7 [22.3, 28.5] Gestation at booking/ recruitment (days) median [IQR] I: 84 [77, 87] C: 84 [77, 88] Range 35 days (7 weeks) to 125 days (17 weeks and 6 days) Group Comparability at baseline No significant differences in age, height, weight, BMI or parity were found between the groups	and 34 weeks gestation, when women were questioned about frequency of supplement use Participants were regarded as compliers if they reported taking five or more tablets per week until the 34-week appointment Some results are reported only for compliant participants, see Results If women reported they had stopped taking supplements they were asked about length and frequency of supplement use and reason for cessation	and 34 weeks gestation. Infants were weighed at birth. RESULTS Analysis of data from 353 live births (I: n=179, C: n=174) by intention to treat showed no significant differences in birth outcomes Birthweight (g) mean [SD]: I: 3240 [539] C: 3233 [519] Low birthweight (<2500g) n: I=13, C=8 Small for gestational age (<10th centile birth weight for gestational age) n: I=30/179 (17%), C=31/174 (18%) Gestation at birth (d) median [IQR] I: 280 [271, 286] C: 278 [272, 285] (280 days = 40 weeks) Preterm (<37 weeks) n: I=9, C=8 Analysis of data from 149 births to compliers (I: n=88, C: n=61), not by intention to treat showed women in the placebo group were significantly more likely to have a small for gestational age infant compared with those in the treatment group. However when participants recruited >13 weeks were removed from the analysis, the result was no longer statistically significant. Birthweight (g) mean [SD]: I: 3270 [591] C: 3141 [485] Low birthweight (<2500g) n: I=6, C=0 Small for gestational age (<10th centile birth weight for gestational age) n: I=8/88 (9%), C= 13/61(21%) P=0.042 Gestation at birth (d) median [IQR] I: 279 [273, 285] C: 275 [271, 281] Preterm (<37 weeks) n: I=6, C=3 Nutrient status (by intention-to-treat analysis) Mean Hb g/l [SD] 26 weeks of gestation I: 110 [10] C: 108 [10] P=0.041 34 weeks of gestation g/l [SD]	Birthweight reported for 353/402 (88%) I: 179/207 (86%) C: 174/195 (89%) Hb and PCV reported for 390/402 (97%) I: 201/207 (97%) C: 189/195 (97%) Serum ferritin, erythrocyte folate, thiamine diphosphate and 25- Hydroxyvitami n D reported for numbers ranging from 104 (50%) to 190 (92%) of the intervention group and 104 (53%) to 177 (91%) of the control group Rates of compliance were low (39%), i.e. 155/402 randomised	to take daily until 12 weeks of gestation". This should have ensured that all participants took 400 µg folic acid daily during the first trimester. However as women in the intervention group also received 400 µg folic acid daily during the first trimester as part of the intervention, those women in the intervention group who were not taking folic acid at recruitment were being given 800 µg folic acid to take daily until 12 weeks of gestation. After enrolment, thirteen participants were found by ultrasound scan to have a gestation of greater than 13 weeks. They remained in the

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				<p>I: 113 [12] C: 109 [10] P=0.003</p> <p>Packed cell volume concentration l/l [SD] 26 weeks of gestation I: 0.330 [0.025] C: 0.323 [0.026] P=0.011 34 weeks of gestation g/l [SD] I: 0.338 [0.029] C: 0.330 [0.028] P=0.014</p> <p>Costs: Not reported</p> <p>Views: women's reasons for not completing the study (247/402) Reason beyond participant's control (mainly forgot to take or lost supplements): Treatment 34, Placebo 45, Total 79/402 Decided not to continue with the study: Treatment 24/207, Placebo 25/195, Total 49/402 Disliked formulation of tablets (too large, disliked taste/smell): Treatment 16, Placebo 15, Total 31/402 Reported side effects (mainly nausea or vomiting): Treatment 25, Placebo 28, Total 53/402 Medical reason (hyperemesis, miscarriage or termination, twins, other): Treatment 17, Placebo 18, Total 35/402</p>	<p>completed the study (I: 91/207, 44%; C: 64/195, 33%).</p> <p>Data from 149 births to compliers were analysed separately</p>	<p>study and in the final analysis: authors state "their inclusion afforded little difference in the nutrient data" but note their birthweight findings</p> <p>FM comment: non-compliance may be most relevant finding</p>
<p>Chan et al. 2006</p> <p>Salt Lake City, Utah, US</p> <p>Research aim To evaluate the effects of two dietary calcium interventions on adolescent pregnant mothers and their offspring</p> <p>Study Design RCT with three groups</p> <p>Method of Group allocation</p>	<p>Selection Recruited from University of Utah Teen Mother and Child Program and from private obstetric practices</p> <p>Inclusion criteria Healthy Age 15-17</p>	<p>N = 72 Control group (C) n=23 Orange juice plus calcium (I1) n=24 Dairy (I2) n=25</p> <p>Age in years mean [SD] C:16.7 [0.6] I1:16.6 [0.6] I2:16.6 [0.6]</p> <p>Ethnicity White n {%} C: 20 {87} I1: 21 {88} I2: 21 {84}</p> <p>Ethnicity Hispanic (n) {%} C: 3 {13} I1: 3 {12} I2: 4 {16}</p>	<p>Details of intervention</p> <p>All mothers were counselled on proper nutrition during pregnancy. In addition:</p> <p>What the Control group (n=23) got Their usual diet</p> <p>I1 Orange juice plus calcium (n=24) Counselled to consume at least four servings per day (more than 1200 mg calcium) of</p>	<p>Statistical Techniques Chi-squared tests, repeated ANOVA, Tukey analyses for multiple comparison post-tests, Student t tests. Values of P<0.01 were considered significant</p> <p>Data Collection Methods Blood samples at enrolment, 6 months gestation and at the birth Dietary records by self-report Body composition of infants by dual-energy absorptiometry scan</p> <p>Mean birth weight (n not reported) g [SD] Control: 3277 [177] Orange juice and calcium: 3292 [165]</p>	<p>Losses and drop-outs</p> <p>72 randomised to: Control group n=23 Orange juice plus calcium n=24 Dairy n=25</p> <p>At the birth, maternal blood was not collected from</p>	<p>Number of infants for whom birthweights were available is not reported</p>

Author year country Research aim, Design Details	Participant Selection Inclusion/	Baseline characteristics of participants	Intervention details	Results	Losses	Additional Comments
<p>Computer generated randomisation using sealed envelopes</p> <p>Unit of allocation Individual</p> <p>Unit of analysis Individual</p> <p>Sample size calculation Assuming a difference of 300g in birth weights with a standard deviation of 500g, the calculated sample size was 22 in each group for a proposed alpha of 0.05 and a power of 0.80</p> <p>Sample size achieved No</p> <p>Outcome Measures Infant birthweight, length and head circumference Maternal blood levels of nutrients Maternal records of dietary intake</p>	<p>years <20 weeks gestation by date of last menstrual period</p> <p>Exclusion criteria Hypertension Diabetes Renal or liver disease Using alcohol, tobacco or medications that would affect calcium metabolism</p>	<p>BMI kg/m² mean [SD] C: 25 [5] I1: 26 [5] I2: 25 [4]</p> <p>Weight gain kg [SD] C:14.0 [11.1] I1:13.9 [12.0] I2:14.1 [9.6]</p> <p>Weeks gestation at start [SD] C:19.0 [0.7] I1:18.0 [0.7] I2:18.0 [0.8]</p> <p>Weeks gestation at the birth [SD] C:39 [1] I1: 39 [1] I2: 39 [1]</p> <p>Group Comparability at baseline Mothers were found to be similar in weight, height and blood pressure at enrolment</p> <p>Paper states "all mothers were primiparous except for one". Randomised group of this mother is not reported.</p>	<p>orange juice plus calcium per day, so that their calcium intake would be similar to the dairy group</p> <p>I2 Dairy n=25 Counselled to consume at least four servings per day (more than 1200 mg calcium) of dairy products i.e. milk, yogurt, cheese</p> <p>Dietary compliance for the two intervention groups was monitored weekly</p>	<p>Dairy: 3517 [273] Paper states infants in dairy group were significantly heavier (P<0.001) at birth than infants in the other two groups</p> <p>Paper states infants in dairy group had significantly higher total body calcium than infants in the control group (P<0.001). No difference was found in total body calcium between the dairy group and the orange juice and calcium group. Paper states all infants had similar length, head circumference and blood pressure (numerical results not reported).</p> <p>Costs: Not reported</p> <p>Views: The protocol was changed when the mothers in the orange juice plus calcium group could not comply with consuming four servings of orange juice fortified with calcium. Calcium carbonate tablets were given to the mothers in the orange juice group.</p>	<p>6/72 participants (8.3%): 3/24 in the orange juice plus calcium group 3/25 in the dairy group</p> <p>Umbilical cord blood was not collected from infants of 13/72 participants (18%): 2/23 in the control group 3/24 in the orange juice plus calcium group 5/25 in the Dairy group</p> <p>Self-reported dietary daily intakes were collected from all participants at enrolment and delivery</p>	

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<p>Ford et al. 2008 and Mouratidou et al. 2012</p> <p>UK, Sheffield</p> <p>Research aim To examine the effect of Healthy Start (HS) on dietary intakes and eating patterns of low-income, Caucasian, pregnant and post-partum women</p> <p>Study Design Before-after study (different participants before and after)</p> <p>Method of Group allocation Before (Phase 1) data collected Nov 2005-Nov 2006, before the introduction of HS After (Phase 2) data collected Apr-Nov 2007</p> <p>Unit of allocation Individual women</p> <p>Unit of analysis Individual women</p> <p>Sample size calculation Not performed</p> <p>Sample size achieved 336 recruited, 312 in the analysis</p>	<p>Selection Low income, white British, English- speaking, pregnant or postpartum women living in deprived electoral wards in Sheffield, identified via administration system for maternity patients</p> <p>Inclusion criteria (before) Beneficiaries or eligible for Welfare Food scheme (WFS)</p> <p>Exclusion criteria Any nutrition- related pre- existing medical condition such as diabetes, coeliac disease</p> <p>Inclusion criteria (after) Beneficiaries or eligible for Healthy Start</p>	<p>Group Comparability at baseline</p> <p>The characteristics measured were height, pre-pregnancy weight, BMI, age, recipients of food support, educational attainment, self-reported smoking status, pre- conceptional vitamin supplementation, pre- and post-conceptional folic acid supplementation and pregnancy planning</p> <p>The comparisons reported are: 1) between pregnant women before (WFS, n=83) and after (HS, n=87) the intervention 2) between postpartum women before (WFS, n=80) and after (HS, n=62) the intervention</p> <p>For most characteristics these comparisons found no significant differences</p> <p>Significant differences were found among pregnant women for: Pre-conceptional vitamin supplementation WFS yes 25%, no 75% vs. HS yes 7%, no 93%; p=0.001 Preconceptional folic acid supplementation WFS yes 16%, no 84% vs. HS yes 3%, no 97%; p=0.006</p>	<p>Details of WFS (before) WFS provided, to those receiving qualifying benefits: tokens that could be exchanged for liquid milk and infant formula vitamin supplements to pregnant women, nursing mothers and children under 5 years WFS also provided non-means- tested milk to those in nurseries or other forms of day care, and to a small number of disabled children aged 5-16 years not attending any school</p> <p>Details of HS (after) HS provided, to those receiving qualifying benefits, vouchers that could be exchanged for: fresh fruit and vegetables milk infant formula HS is also designed to ensure beneficiaries have access to good quality information and advice about health and lifestyle in pregnancy and after the birth. HS is meant to benefit breastfeeding and non- breastfeeding mothers equally</p>	<p>Statistical Techniques Independent-sample t tests and chi-squared tests to assess participant characteristics Non-parametric Mann-Whitney U test to compare differences in crude dietary intakes (not normally distributed) Univariate analysis to control for possible effects of confounding factors on nutrient intakes between pregnant WFS and HS women and between postpartum WFS and HS women</p> <p>Data Collection Methods Closed question interviews for participant characteristics Self-reported heights and pre-pregnancy weights for BMI Validated, interview administered food frequency questionnaire (FFQ) for dietary intakes</p> <p>RESULTS Pregnant and 4-weeks postpartum HS women had significantly higher energy and nutrient intakes</p> <p>After controlling for the effects of possible confounders, the association between receipt of HS vouchers and increased mean nutrient intakes still existed for energy, Ca, folate, Fe and vitamin C in both pregnant and postpartum samples</p> <p>OTHER RESULTS ARE REPORTED BY FORD ET AL</p> <p>Energy intakes (MJ) for postpartum womenBefore (WFS) After (HS) 4 weeks 7.6 9.7 8 weeks 7.2 8.8 12 weeks 7.6 9.4</p> <p>Fruit and vegetable consumption (portions/ day) for postpartum womenBefore (WFS) After (HS) 4 weeks 2.7 3.4</p>	<p>Losses and drop-outs</p> <p>WFS (before) 176 recruited (90 pregnant, 86 postpartum) 13 lost (3 pregnant and 4 postpartum lost because of incomplete dietary data, 4 pregnant and 2 postpartum because of excessive energy intakes) 163/176 (92.6%) in the analyses of Ford et al 2008 (83/90 pregnant (92%) and 80/86 4 weeks postpartum (93%)) In the analyses of Mouratidou et al 2012: 53/86 (61.6%) women 8 weeks postpartum 47/86 (54.6%) women 12 weeks postpartum</p>	

Author year country Research aim, Design Details	Participant Selection Inclusion/	Baseline characteristics of participants	Intervention details	Results	Losses	Additional Comments
<p>Outcome Measures</p> <p>Dietary intakes of energy, protein, fat, carbohydrate, fibre, alcohol and micronutrients:</p> <p>Calcium (Ca)</p> <p>Iron (Fe)</p> <p>Zinc (Zn)</p> <p>Folate</p> <p>Vitamin C</p>	<p>Exclusion criteria</p> <p>Any nutrition-related pre-existing medical condition</p>	<p>Significant differences were found among postpartum women for:</p> <p>Mean pre-pregnancy weight (kg [SD])</p> <p>WFS 61 [14] vs. HS 65 [13] p=0.010</p> <p>Mean BMI (kg/m², [SD])</p> <p>WFS 23.3 [4.8] vs. HS 25.4 [4.9] p=0.003</p> <p>Mean age (years, [SD])</p> <p>WFS 25 [7] vs. HS 22 [6] p=0.021</p> <p>Characteristics of those who were followed up and those who dropped out at weeks 8 or 12 were found not to differ</p>		<p>8 weeks 2.8 4.1</p> <p>12 weeks 2.7 3.7</p> <p>Costs: Not reported</p> <p>Views: Not reported</p>	<p>HS (after)</p> <p>160 recruited (96 pregnant, 64 postpartum)</p> <p>11 lost (9 pregnant and 2 postpartum lost because of excessive energy intakes)</p> <p>149/160 (93%) in the analysis of Ford et al 2008 (87/96 pregnant (90.6%) and 62/64 4 weeks postpartum (97%))</p> <p>In the analyses of Mouratidou et al 2012: 33/64 (51.6%) women 8 weeks postpartum 39/64 (70%) women 12 weeks postpartum</p>	
<p>Thornton et al. 2009 US</p> <p>Research aim</p> <p>To evaluate outcomes for mothers and their infants of a nutritional and behavioural intervention for obese pregnant women</p>	<p>Selection</p> <p>Attending for prenatal care at one of three study hospitals, the institutions of the principal investigator.</p> <p>Each site was</p>	<p>N randomised=257</p> <p>Data for 232</p> <p>I = 116 C = 116</p> <p>Median age in years</p> <p>I: 27.3 C: 26.8</p> <p>Primigravida n {%}</p> <p>I: 20 {17.2} C: 19 {16.3}</p>	<p>Details of intervention</p> <p>All participants were counselled at least once by a registered dietician regarding conventional prenatal nutrition guidelines, and encouraged to walk for 30 minutes each day</p> <p>The study group was monitored</p>	<p>Statistical Techniques</p> <p>Two t tests, MANOVA, chi-squared tests. Levene's equality of error variance to test the homogeneity of variance assumption.</p> <p>Data Collection Methods</p> <p>BMI calculated based on height measured at the clinic and self-reported prepregnancy weight</p> <p>Mean gain difference from baseline weight to last</p>	<p>Losses and drop-outs</p> <p>257 randomised</p> <p>Intervention n=124</p> <p>Control n=133</p> <p>232/257 (90%)</p>	<p>Adherence was defined as recording daily food intake and bringing the log book to her clinic visit for review by the physician.</p> <p>Non-adherence</p>

Author year country Research aim, Design Details	Participant Selection Inclusion/ Exclusion	Baseline characteristics of participants	Intervention details	Results	Losses	Additional Comments
<p>Study Design RCT conducted sequentially in three centres June 1998-May 2005</p> <p>Method of Group allocation Random number table to assign each consecutively numbered envelope to study or control group in blocks of 10</p> <p>Unit of allocation Individual</p> <p>Unit of analysis Individual</p> <p>Sample size calculation Based on the comparison of weight gain at delivery. For at least 80% power and a 5% significance level with an expected attrition rate of 20%, 100 patients were required for each group.</p> <p>Sample size achieved Yes</p> <p>Outcome Measures Weight gain during pregnancy Weight loss between birth and 6 weeks postpartum Mode of delivery Birthweight, condition at birth (APGAR)</p>	<p>an urban, public clinic of a teaching hospital</p> <p>Inclusion criteria Singleton pregnancy 12-28 weeks gestation BMI ≥ 30 kg/m²</p> <p>Exclusion criteria Pre-existing diabetes, hypertension or chronic renal disease</p>	<p>Married/ de facto I: 85 {73.3} C: 88 {75.9}</p> <p>African American n {%} I: 49 {42.2} C: 46 {39.7}</p> <p>Caucasian n {%} I: 27 {23.3} C: 25 {21.6}</p> <p>Latina n {%} I: 25 {21.6} C: 29 {25.0}</p> <p>Indian n {%} I: 15 {12.9} C: 16 {13.7}</p> <p>Baseline pregnancy weight, lbs [SD] p=0.060 I: 214.20 [50.71] C: 204.11 [51.80]</p> <p>Body mass index (BMI) kg/m² [SD] p=0.134 I: 38.22 [7.48] range 30-69 kg/m² C: 37.41 [7.01] range 30-64 kg/m²</p> <p>Group Comparability at baseline Demographics reported to be comparable</p>	<p>They were prescribed an 18 to 24 kcal/kg balanced nutritional regimen based on their weight at study entry The regimen was 40% carbohydrates, 30% protein and 30% fat. No patient received a diet of <2000 calories Women were asked to record all they ate or drank each day Records were reviewed at each prenatal visit by the physician</p> <p>What the Control group got The control group was unmonitored They were told to eat to appetite following general prenatal dietary guidelines</p>	<p>weight before delivery kg [SD] 95% CI I (n=116): 11 [14.96] 8.59 to 14.10 C (n=116): 31 [16.31] 27.82 to 33.82 p<0.001</p> <p>Mean loss difference from last weight before delivery to 6 weeks postpartum kg [SD] 95% CI I (n=116): 16 [7.21] 24.17 to 12.14 C (n=116): 18 [32.71] 17.03 to 14.38 p=0.431</p> <p>Caesarean delivery n (%) I: 91/116 (78.4%) C: 83/116 (71.6%)</p> <p>Mean birthweight g [SD] I: 3526 [608.36] C: 3586 [560.81] p=0.438</p> <p>Birthweight >4500g I: 9/116 C: 4/116 (3.4%) p=0.153</p> <p>Apgar score 7-10 at 5 minutes n (%) I: 115 (99.1) C: 116 (100)</p> <p>Costs: Not reported</p> <p>Views: Not reported</p>	<p>in the analysis Intervention 116/124 (94%) Control 116/133 (87%)</p> <p>Lost to follow-up</p> <p>8 from Intervention Relocated outside area =2 Did not return for prenatal care=3 Became privately insured and changed health provider=3</p> <p>17 from Control Relocated outside area =4 Did not return for prenatal care=7 Became privately insured and changed health provider=6</p>	<p>was defined as not recording food intake for more than a week and failing to bring the logbook to clinic for review.</p> <p>The study was not powered for birthweight outcomes</p> <p>Other outcomes are reported, but not by randomised group</p>

Quality appraisal of before and after study

Study	Are the groups selected from a suitable sampling frame? ✓: yes x: no n/r: not reported u/c: unclear	Are both groups selected from the same sampling frame? ✓: yes x: no n/r: not reported u/c: unclear	Random sampling for both groups? ✓: yes x: no n/r: not reported u/c: unclear	If not random what method of sampling was used? (state method)	A priori sample size calculation? ✓: Yes x: No nr: not reported	Clear inclusion/exclusion criteria? ✓: Yes x: No n/r: not reported u/c: unclear	What other factors (other than the intervention) may have affected the outcome? (State factors)	Were groups comparable for possible confounding factors? ✓: Yes x: No n/r: not reported u/c: unclear	Did authors adjust for effects of confounders ? ✓: Yes x: No n/r: not reported u/c: unclear	Withdrawals ✓a: reported by group with reason ✓b: reported, not by group vc: reported, not by reason n/r: not reported or unclear n/a: no withdrawals	Was the analysis appropriate ? ✓: Yes x: No	Was the method of assessing dietary intake appropriate ? ✓: Yes x: No n/r: not reported/ unclear
Ford 2008; Mouratidou et al. 2012	✓	✓	x	The patient administration system of the hospital was interrogated monthly to generate lists of pregnant and postnatal women. Lists were filtered to reflect study eligibility criteria (ethnicity, age, postcode)	x	✓	?	✓ mostly	✓	✓a	✓	✓ but problematic

Quality appraisal of randomised controlled trials

Study	Clear inclusion / exclusion criteria ✓: clear x: not clear or not reported	Overall sample size [arms]	A priori sample size calculation ✓: Yes x: no n/r: not reported/ unclear	True randomisation? ✓: appropriate x: not appropriate n/r: not reported/unclear	Comparability of groups reported at baseline ✓: groups comparable at baseline x: groups not comparable at baseline n/r: not reported	Blinded outcome assessment ✓: outcome assessment blinded x: not blinded n/r: not reported/ unclear	Withdrawals ✓a: reported by group with reason ✓b: reported, not by group or not by reason n/r: not reported or unclear n/a: no withdrawals	Intention to treat analysis ✓: analysis was by intention to treat x: analysis was not by intention to treat n/r: not reported/ unclear n/a: not applicable	What was the methodology of dietary intake assessment appropriate? ✓: Yes x: No n/r: not reported/ unclear
Asbee, 2009	✓	100 I=57, C=43	✓ (not achieved)	✓	✓	x	✓	✓	n/r
Brough, 2012	✓	402 I=207, C=195	n/r	n/r	✓	✓	✓a (not clear how many reasons per woman?)	✓ Additional analyses were not by ITT	✓ - intake was tablets and self-reported compliance was measured
Chan, 2006	✓	72 I1=24, I2=25 C=23	✓ (not achieved)	✓	✓	x	n/r (unclear)	✓ analysis was by randomised groups, but not clear how many of those allocated had data in the analyses	✓ - intake was dietary (and some tablets) and self-reported compliance was measured
Thornton, 2009	✓	257 I=124, C=133	✓ (achieved)	✓	✓	x	✓a	✓ Additional analyses were not by ITT	✓ Intake was recorded by participants who showed records to the physician at clinic. Measurement was by results.

Appendix 5: Glossary of terms for systematic review of economic literature

Almost Ideal Demand System (AIDS): The AIDS, developed by Deaton and Meulbauer in the late 1970s/early 1980s, is the most recent major breakthrough in demand system generations and it is now the most commonly used flexible system model in demand studies. It specifies budget share as a function of utilities and prices. It has a number of desirable properties: “it satisfies the axioms of choice exactly; it aggregates perfectly over consumers without invoking parallel linear Engel curves; it has a functional form which is consistent with known household-budget data; it is simple to estimate, largely avoiding the need for non-linear estimation; and it can be used to test the restrictions of homogeneity and symmetry through linear restrictions on fixed parameters” (Deaton & Muelbauer, 1980).

Cross-sectional data*: observations on individuals, households, firms, cities, countries within one period of time.

Elasticity*: percentage change in the dependent variable, such as income or advertising expenditure, that results from a 1% change in the explanatory variable (e.g. spending on a specific good).

Engel curves*: show the relationship between the amount of a product that people are willing to buy and their income

Expanded Food and Nutrition Education Program (EFNEP): The aim of the EFNEP is to improve the health of limited resource youth and families with young children through practical lessons on: basic nutrition and healthy lifestyles, resource management and food safety. The programme focusses on dietary intake as recommended by the Dietary Guidelines and ‘MyPlate’, Food Resource Management skills and practices, Nutrition Practices and Food Safety practices. The aim is to increase the abilities of participants in their selection and purchase of food that meets the nutritional needs of their families and to gain new skills in food preparation, food storage, and food safety. They learn to better manage their food budgets – including the use of Electronic Benefits Transfer (EBT) and Food Instruments and Cash Value Vouchers. Eligible participants are pregnant women, families with young children (under the age of 19) living in either rural or urban areas who are responsible for the planning, purchasing and preparing of the family's food, pregnant and parenting teens and School-age youth (5 - 19 years of age). (see <http://www.ces.ncsu.edu/EFNEP/about.html>)

Heckman procedure*: The Heckman selection correction is a statistical solution to a form of sample selection bias. Sample selection bias can emerge when a population parameter of interest is estimated with a sample obtained from that population by other than random means. Such sampling yields a distorted empirical representation of the population of interest with which to estimate such parameters (Heckman, 1979), possibly leading to biased estimates

Income effect*: In economics, the income effect is the change in consumption resulting from a change in real income.

Income elasticity of demand*: is used to see how sensitive the demand for a good is to an income change. The higher the income elasticity, the more sensitive demand for a good is to income changes. A very high income elasticity (>1) suggests that when a consumer's income goes up, consumers will buy a great deal more of that good (‘luxury’ good). A negative price elasticity implies the opposite, that increases in a consumer's income reduce demand for that good. An income elasticity of between 0 and 1 is classed as a ‘normal’ good, such that as income rises, demand increases but by a lower % than the % increase in income.

Indifference curves*: An indifference curve shows the combination of two products that provide an individual with the same level of utility (satisfaction).

In-kind transfer income*: Indirect means of redistributing income; gives low-income workers goods or vouchers for goods instead of giving them direct cash payments.

Ordinary Least Squares (OLS)*: a method of regression analysis. This method fits the best line showing the relationship between two variables that minimizes the sum of squared distances between the original data points and the responses predicted by the linear approximation.

Panel data*: repeated observations on more than one set of cross section (individuals, households, firms, cities, countries) data over several periods of time.

Price effect*: the change in consumption resulting from a change in prices.

Supplemental Nutrition Assistance Program (SNAP): The United States Supplemental Nutrition Assistance Program (SNAP), historically and commonly known as the Food Stamp Program, is a federal-assistance program that provides assistance to low- and no-income people and families living in the U.S. Though the program is administered by the U.S. Department of Agriculture, benefits are set and distributed at State level.

Food-stamp benefits are currently distributed by Electronic Benefit Transfer (EBT) to a card-based system. For most of its history (prior to the late 1990s) the program used paper denominational stamps or coupons worth US\$1, US\$5, and US\$10. Stamps can be used to purchase any pre-packaged edible foods regardless of nutritional value (including soft drinks and confectionery). Many States merged the use of the EBT card for other public-assistance welfare programs as well. (<http://www.nutrition.gov>)

Food has to be purchased from approved shops and can cover; breads and cereals, fruits and vegetables, juices, baby food in boxes and jars, meats, fish and poultry, dairy products, seeds and plants which produce food for the household. It excludes; alcohol, cigarettes, tobacco, any non-food items, animal foods, vitamins and medicines; food that will be eaten in a store; and hot foods. It can include 'junk foods' (such as chips), and to change this would require a change to law.

Time series data*: observation of one household, or one firm, or one country, etc., at several time points.

Type II Tobit model*: The Tobit model, also called a censored regression model, is designed to estimate linear relationships between variables when there is either left- or right-censoring in the dependent variable. Censoring occurs when variable with a value at or above some threshold, take on the value of the threshold, so that the true value might be equal to the threshold, but it might also be higher or lower.

Two-stage least squares (2SLS)*: This technique is an extension of the OLS method. It is used when the dependent variable's error terms are correlated with the independent variables or when independent variables are not truly independent.

US Supplement Food Program for Women, Infants and Children (WIC): is a Federal assistance program of the Food and Nutrition Service (FNS) of the United States Department of Agriculture (USDA) for healthcare and nutrition of low-income pregnant women, breastfeeding women, and infants and children under the age of five. (See Child nutrition programs) The eligibility requirement is a family income below 185% of the U.S. Poverty Income Guidelines. If a person participates in other benefit programs, or has family members who participate in the Food Stamp Program,

Medicaid, or Temporary Assistance for Needy Families, they automatically meet the eligibility requirements. This program is unrelated to the USDA's Food Stamp Program.

WIC participants receive checks or vouchers to purchase specific foods each month that are designed to supplement their diets with specific nutrients that benefit WIC's target population. In addition, some States issue an electronic benefit card to participants instead of paper checks or vouchers. The use of electronic cards is growing and all WIC State agencies are required to implement WIC electronic benefit transfer (EBT) state-wide by October 1, 2020. A few State agencies distribute the WIC foods through warehouses or deliver the foods to participants' homes. Different food packages are provided for different categories of participants.

WIC foods include infant cereal, iron-fortified adult cereal, vitamin C-rich fruit or vegetable juice, eggs, milk, cheese, peanut butter, dried and canned beans/peas, and canned fish. Soy-based beverages, tofu, fruits and vegetables, baby foods, whole-wheat bread, and other whole-grain options were recently added to better meet the nutritional needs of WIC participants.

WIC recognizes and promotes breastfeeding as the optimal source of nutrition for infants. For women who do not fully breastfeed, WIC provides iron-fortified infant formula. Special infant formulas and medical foods may be provided when prescribed by a physician for a specified medical condition.

*source: online economics dictionary Babylon <http://www.babylon.com>

Appendix 6: Literature searches, by database

MEDLINE

Via Ovid

Date coverage: 1948 - present

Search date: 3/2/2011

Records retrieved: 2264

Facet 1: vouchers

1. (voucher\$ adj6 (food or foods or nutrition or diet or fruit\$ or vegetable\$)).mp. [mp=protocol supplementary concept, rare disease supplementary concept, title, original title, abstract, name of substance word, subject heading word, unique identifier] (30)
2. (stamp\$ adj6 (food or foods or nutrition or diet or fruit\$ or vegetable\$)).mp. [mp=protocol supplementary concept, rare disease supplementary concept, title, original title, abstract, name of substance word, subject heading word, unique identifier] (258)
3. (coupon\$ adj6 (food or foods or nutrition or diet or fruit\$ or vegetable\$)).mp. [mp=protocol supplementary concept, rare disease supplementary concept, title, original title, abstract, name of substance word, subject heading word, unique identifier] (20)
4. (token\$ adj6 (food or foods or nutrition or diet or fruit\$ or vegetable\$)).mp. [mp=protocol supplementary concept, rare disease supplementary concept, title, original title, abstract, name of substance word, subject heading word, unique identifier] (38)
5. 1 or 2 or 3 or 4 (338)

Facet 2: food programmes

- 1 wic.ti,ab. (708)
- 2 (special supplemental nutrition program for women infants and children).ti,ab. (252)
- 3 (supplemental nutrition program for women infants and children).ti,ab. (270)
- 4 (supplemental food program for women infants and children).ti,ab. (90)
- 5 (women infants and children supplemental nutrition program).ti,ab. (4)
- 6 (women infants and children supplemental food program).ti,ab. (4)
- 7 (women infants and children).ti,ab. (601)
- 8 (food and nutrition service).ti,ab. (32)
- 9 (expanded food and nutrition education program).ti,ab. (39)
- 10 efnep.ti,ab. (25)
- 11 welfare food scheme.ti,ab. (7)
- 12 healthy start.ti,ab. (135)
- 13 sure start.ti,ab. (71)
- 14 surestart.ti,ab. (6)
- 15 lifeskills in food education.ti,ab. (0)
- 16 nutrition education network.ti,ab. (5)
- 17 nutrition integrity.ti,ab. (5)
- 18 (food and money basics).ti,ab. (0)
- 19 food stamp program.ti,ab. (74)
- 20 community mothers programme.ti,ab. (4)
- 21 protection maternelle et infantile.ti,ab. (7)
- 22 protection maternelle et infantile.ot,ab. (75)
- 23 healthstart.ti,ab. (7)
- 24 farmers market nutrition program\$.ti,ab. (7)
- 25 or/1-24 (1340)

Economic terms:

- 26 (Demand or utilisation or utilization or elasticit\$ or (substitution adj1 effect) or (income adj1 effect) or (function adj2 price) or subsid\$ or incentive\$ or willingness to pay or WTP or receipts or expenditure).mp. [mp=protocol supplementary concept, rare disease supplementary concept, title, original title, abstract, name of substance word, subject heading word, unique identifier] (275382)

NHS-EED economics filter:

- 27 economics/ (25791)
28 exp "costs and cost analysis"/ (151806)
29 economics, dental/ (1784)
30 exp "economics, hospital"/ (16717)
31 economics, medical/ (8231)
32 economics, nursing/ (3785)
33 economics, pharmaceutical/ (2155)
34 (economic\$ or cost or costs or costly or costing or price or prices or pricing or pharmacoeconomic\$.ti,ab. (341944)
35 (expenditure\$ not energy).ti,ab. (14237)
36 (value adj1 money).ti,ab. (18)
37 budget\$.ti,ab. (15162)
38 or/27-37 (452920)
39 ((energy or oxygen) adj cost).ti,ab. (2339)
40 (metabolic adj cost).ti,ab. (601)
41 ((energy or oxygen) adj expenditure).ti,ab. (13005)
42 or/39-41 (15332)
43 38 not 42 (449367)
44 letter.pt. (707906)
45 editorial.pt. (274742)
46 historical article.pt. (266486)
47 or/44-46 (1236940)
48 43 not 47 (425616)
49 Animals/ (4590146)
50 Humans/ (11341795)
51 49 not (49 and 50) (3401080)
52 48 not 51 (403075)
53 25 and 26 (118)
54 25 and 52 (157)
55 53 or 54 (250)

Facet 3: vitamins etc

- 1 vitamin a/ or vitamin c/ or vitamin d/ or vitamin b6/ or dietary, iron/ or zinc/ or dietary, calcium/ or folates.ti,ab. or folic acid/ or magnesium/ or selenium/ or dietary, fats/ or dietary, proteins/ or dietary, carbohydrates/ or micronutrient\$.ti,ab. or macronutrient\$.ti,ab. or multivitamin\$.ti,ab. (268054)
2 (mother or mothers or maternal or childbear\$ or pregnant or pregnancy or breastfeed\$ or breast feed\$ or lactating or lactation or periconcept\$ or preconcept\$ or postnatal or prenatal or postpartum).ti,ab. (544253)
3 child, preschool/ or exp infant/ (1123070)
4 2 or 3 (1544041)
5 1 and 4 (26200)

NHS-EED filter:

- 6 economics/ (25791)
- 7 exp "costs and cost analysis"/ (151806)
- 8 economics, dental/ (1784)
- 9 exp "economics, hospital"/ (16717)
- 10 economics, medical/ (8231)
- 11 economics, nursing/ (3785)
- 12 economics, pharmaceutical/ (2155)
- 13 (economic\$ or cost or costs or costly or costing or price or prices or pricing or pharmaco-economic\$.ti,ab. (341944)
- 14 (expenditure\$ not energy).ti,ab. (14237)
- 15 (value adj1 money).ti,ab. (18)
- 16 budget\$.ti,ab. (15162)
- 17 or/6-16 (452920)
- 18 ((energy or oxygen) adj cost).ti,ab. (2339)
- 19 (metabolic adj cost).ti,ab. (601)
- 20 ((energy or oxygen) adj expenditure).ti,ab. (13005)
- 21 or/18-20 (15332)
- 22 17 not 21 (449367)
- 23 letter.pt. (707906)
- 24 editorial.pt. (274742)
- 25 historical article.pt. (266486)
- 26 or/23-25 (1236940)
- 27 22 not 26 (425616)
- 28 Animals/ (4590146)
- 29 Humans/ (11341795)
- 30 28 not (28 and 29) (3401080)
- 31 27 not 30 (403075)

Economic terms:

- 32 (Demand or utilisation or utilization or elasticit\$ or (substitution adj1 effect) or (income adj1 effect) or (function adj2 price) or subsid\$ or incentive\$ or willingness to pay or WTP or receipts or expenditure).mp. [mp=protocol supplementary concept, rare disease supplementary concept, title, original title, abstract, name of substance word, subject heading word, unique identifier] (275382)
- 33 32 not 30 (237224)
- 34 5 and 31 (649)
- 35 5 and 33 (484)
- 36 34 or 35 (1094)

Facet 4: milk

- 1 Infant Formula/ (1594)
- 2 ((baby or formula or infant) adj1 (milk or feed\$)).mp. (5167)
- 3 ((feed\$ or infant) adj1 formula).mp. (3879)
- 4 mixed feed\$.mp. [mp=protocol supplementary concept, rare disease supplementary concept, title, original title, abstract, name of substance word, subject heading word, unique identifier] (495)
- 5 or/1-4 (7917)

Economic terms:

- 6 (Demand or utilisation or utilization or elasticit\$ or (substitution adj1 effect) or (income adj1 effect) or (function adj2 price) or subsid\$ or incentive\$ or willingness to pay or WTP or receipts or expenditure).mp. [mp=protocol supplementary concept, rare disease supplementary concept, title, original title, abstract, name of substance word, subject heading word, unique identifier] (275382)

NHS-EED filter:

- 7 economics/ (25791)
8 exp "costs and cost analysis"/ (151806)
9 economics, dental/ (1784)
10 exp "economics, hospital"/ (16717)
11 economics, medical/ (8231)
12 economics, nursing/ (3785)
13 economics, pharmaceutical/ (2155)
14 (economic\$ or cost or costs or costly or costing or price or prices or pricing or pharmacoeconomic\$).ti,ab. (341944)
15 (expenditure\$ not energy).ti,ab. (14237)
16 (value adj1 money).ti,ab. (18)
17 budget\$.ti,ab. (15162)
18 or/7-17 (452920)
19 ((energy or oxygen) adj cost).ti,ab. (2339)
20 (metabolic adj cost).ti,ab. (601)
21 ((energy or oxygen) adj expenditure).ti,ab. (13005)
22 or/19-21 (15332)
23 18 not 22 (449367)
24 letter.pt. (707906)
25 editorial.pt. (274742)
26 historical article.pt. (266486)
27 or/24-26 (1236940)
28 23 not 27 (425616)
29 Animals/ (4590146)
30 Humans/ (11341795)
31 29 not (29 and 30) (3401080)
32 28 not 31 (403075)
33 6 not 31 (237224)
34 5 and 32 (407)
35 5 and 33 (210)
36 34 or 35 (582)

Econlit

Via Ovid

Date coverage: 1969 - Jan 2011

Search date: 4/2/2011

Records retrieved: 823

Records retrieved after de-duplication 614

Facet 1: vouchers etc

- 1 (voucher\$ adj6 (food or foods or nutrition or diet or fruit\$ or vegetable\$)).mp. [mp=heading words, abstract, title, country as subject] (6)

- 2 (stamp\$ adj6 (food or foods or nutrition or diet or fruit\$ or vegetable\$)).mp. [mp=heading words, abstract, title, country as subject] (359)
- 3 (coupon\$ adj6 (food or foods or nutrition or diet or fruit\$ or vegetable\$)).mp. [mp=heading words, abstract, title, country as subject] (7)
- 4 (token\$ adj6 (food or foods or nutrition or diet or fruit\$ or vegetable\$)).mp. [mp=heading words, abstract, title, country as subject] (0)
- 5 1 or 2 or 3 or 4 (367)

Facet 2: food programmes

- 1 wic.ti,ab. (47)
- 2 (special supplemental nutrition program for women infants and children).ti,ab. (20)
- 3 (supplemental nutrition program for women infants and children).ti,ab. (21)
- 4 (supplemental food program for women infants and children).ti,ab. (2)
- 5 (women infants and children supplemental nutrition program).ti,ab. (0)
- 6 (women infants and children supplemental food program).ti,ab. (0)
- 7 (women infants and children).ti,ab. (27)
- 8 (food and nutrition service).ti,ab. (0)
- 9 (expanded food and nutrition education program).ti,ab. (1)
- 10 efnep.ti,ab. (1)
- 11 welfare food scheme.ti,ab. (0)
- 12 healthy start.ti,ab. (1)
- 13 sure start.ti,ab. (2)
- 14 surestart.ti,ab. (0)
- 15 lifeskills in food education.ti,ab. (0)
- 16 nutrition education network.ti,ab. (1)
- 17 nutrition integrity.ti,ab. (0)
- 18 (food and money basics).ti,ab. (0)
- 19 food stamp program.ti,ab. (144)
- 20 community mothers programme.ti,ab. (0)
- 21 protection maternelle et infantile.ti,ab. (0)
- 22 protection maternelle et infantile.ot,ab. (0)
- 23 healthstart.ti,ab. (1)
- 24 farmers market nutrition program\$.ti,ab. (3)
- 25 or/1-24 (200)

Facet 3: vitamins etc

- 1 (Vitamin\$ or (diet\$ adj6 (iron or zinc or calcium or magnesium or selenium or fat or fats or protein\$ or carbohydrate\$)) or folate\$ or folic acid or micronutrient\$ or macronutrient\$ or multivitamin\$).mp. [mp=heading words, abstract, title, country as subject] (214)

Facet 4: milk

- 1 ((baby or formula or infant) adj1 (milk or feed\$)).mp. (26)
- 2 ((feed\$ or infant) adj1 formula).mp. (21)
- 3 mixed feed\$.mp. [mp=heading words, abstract, title, country as subject] (2)
- 4 1 or 2 or 3 (42)

SSCI

Via Web of Knowledge

Date coverage: 1956 - present

Search date: 8/2/2011

Records retrieved: 568

Records retrieved after reduplication: 360

15 **533** #14 OR #12 OR #8 OR #3

14 **34** #13 AND #2

13 **1,162** TS="infant food*" OR TS="infant feed*" OR TS="infant milk*" OR TS="baby milk*" OR TS="infant formula*" OR TS="formula milk*" OR TS="formula feed*" OR TS="mixed feed"

12 **362** #11 AND #2

11 **8,090** #10 OR #9

10 **5,467** TS=(vitamin* or folate* or folic acid or micronutrient* or macronutrient* or multivitamin*)

9 **3,112** TS=(diet* SAME (iron or zinc or calcium or magnesium or selenium or fat or fats or protein* or carbohydrate*))

8 **81** #7 AND #2

7 **819** #6 OR #5 OR #4

6 **187** TS="food and money basics" OR TS="food stamp program" OR TS="community mothers programme" OR TS="protection maternelle et infantile" OR TS="farmers market nutrition program"

5 **204** TS="food and nutrition service" OR TS="expanded food and nutrition education program" OR TS="efnep" OR TS="welfare food scheme" OR TS="healthy start" OR TS="healthstart" OR TS="sure start" OR TS="surestart" OR TS="lifeskills in food education" OR TS="nutrition education network" OR TS="nutrition integrity"

4 **448** TS="wic" OR TS="special supplemental nutrition program for women infants and children" OR TS="supplemental nutrition program for women infants and children" OR TS="supplemental food program for women infants and children" OR TS="women infants and children supplemental nutrition program" OR TS="women infants and children supplemental food program" OR TS="women infants and children"

3 **91** #2 AND #1

2 **>100,000** TS=(Demand or utilisation or utilization or elasticit* or "substitution effect" or "income effect" or subsid* or incentive* or "willingness to pay" or WTP or receipts or expenditure) OR TS=(function SAME price)

1 **577** TS=((voucher* or stamp* or coupon* or token*) SAME (food or foods or nutrition or diet or fruit* or vegetable*))

Repec

Via IDEAS

Date coverage: 1950 - present

Search date: 8/2/2011

Records retrieved: 3,195

Facet 1: vouchers

1. vouchers + (food | foods | nutrition | diet | vegetable | fruit) (23)
2. stamps + (food | foods | nutrition | diet | vegetable | fruit) (367)
3. coupons + (food | foods | nutrition | diet | vegetable | fruit) (32)
4. tokens + (food | foods | nutrition | diet | vegetable | fruit) (2)
5. (vouchers | stamps | coupons | tokens) + (food | foods | nutrition | diet | vegetable | fruit) (411)

Facet 2: food programmes

1. WIC (92)
2. "special supplemental nutrition program for women infants and children" (44)
3. "supplemental nutrition program for women infants and children" (45)
4. "supplemental food program for women infants and children" (2)
5. "women infants and children supplemental nutrition program" (0)

6. " women infants and children supplemental food program" (0)
7. " women infants and children" (54)
8. " food and nutrition service " (14)
9. " expanded food and nutrition education program " (2)
10. efnep (1)
11. welfare food scheme (37)
12. healthy start (84)
13. sure start (61)
14. surestart (0)
15. lifeskills in food education (0)
16. nutrition education network (3)
17. nutrition integrity (4)
18. "food and money basics" (0)
19. food stamp program (269)
20. community mothers programme (62)
21. protection maternelle et infantile (0)
22. healthstart (0)
23. farmers market nutrition programs (17)

Facet 3: vitamins etc

- 1.
2. vitamin |vitamins (10)
3. diet +iron (22)
4. diet + zinc (7)
5. diet +calcium (18)
6. diet + magnesium (1)
7. diet + selenium (2)
8. fat (1165)
9. fats (1165)
10. protein (556)
11. proteins (556)
12. carbohydrate (64)
13. carbohydrates (64)
14. folate (10)
15. folates (0)
16. folic acid (8)
17. micronutrient (69)
18. micronutrients (37)
19. macronutrient (4)
20. macronutrients (5)
21. multivitamins (0)
22. multivitamin (0)
23. (vitamin |vitamins) | (diet +iron)| (diet + zinc) | (diet +calcium) | (diet + magnesium) | (diet + selenium)| fat |protein| carbohydrate| folate| micronutrient| micronutrients | macronutrient | macronutrients (1890)

Facet 4: milk

1. (Baby +milk)| (formula +milk) | (infant +milk) (69)
2. (feed+ formula) |(infant + formula) (90)
3. ((Baby +milk)| (formula +milk) | (infant +milk)) | ((feed+ formula) |(infant + formula)) (146)

NBER

Via IDEAS

Date coverage: 1973 - present

Search date: 16/2/2011

Records retrieved: 6,476

Facet 1: vouchers

1. Vouchers and food (125)
2. Vouchers and foods (26)
3. Vouchers and nutrition (60)
4. Vouchers and diet (24)
5. Vouchers and vegetable (7)
6. Vouchers and fruit (13)
7. stamps and food (448)
8. stamps and foods (69)
9. stamps and nutrition (98)
10. stamps and diet (39)
11. stamps and vegetable (21)
12. stamps and fruit (32)
13. tokens and food (11)
14. tokens and foods (2)
15. tokens and nutrition (2)
16. tokens and diet (1)
17. tokens and vegetable (1)
18. tokens and fruit (2)
19. coupons and food (85)
20. coupons and foods (36)
21. coupons and nutrition (29)
22. coupons and diet (18)
23. coupons and vegetable (6)
24. coupons and fruit (18)

Facet 2: food programmes

1. WIC (200)
2. "special supplemental nutrition program for women infants and children" (19)
3. "supplemental nutrition program for women infants and children" (27)
4. "supplemental food program for women infants and children" (10)
5. "women infants and children supplemental nutrition program" (0)
6. "women infants and children supplemental food program" (0)
7. "women infants and children" (53)
8. "food and nutrition service" (29)
9. "expanded food and nutrition education program" (0)
10. efne (0)
11. welfare food scheme (517)
12. healthy start (724)
13. sure start (1380)
14. surestart (0)
15. lifeskills in food education (0)
16. nutrition education network (105)
17. nutrition integrity (12)
18. "food and money basics" (0)

19. food stamp program (252)
20. community mothers programme (26)
21. protection maternelle et infantile (0)
22. healthstart (1)
23. farmers market nutrition programs (77)

Facet 3: vitamins etc

1. vitamin or vitamins (24)
2. diet and iron (101)
3. diet and zinc (7)
4. diet and calcium (28)
5. diet and magnesium (11)
6. diet and selenium (2)
7. fat (596)
8. fats (198)
9. protein (167)
10. proteins (62)
11. carbohydrate (22)
12. carbohydrates (26)
13. folate (14)
14. folates (3)
15. folic acid (11)
16. micronutrient (14)
17. micronutrient (13)
18. macronutrient (5)
19. macronutrients (6)
20. multivitamins (4)
21. multivitamin (2)

Facet 4: milk

1. baby and milk (68)
2. formula and milk (152)
3. infant and milk (91)
4. feed and milk (91)
5. infant and formula (181)

Appendix 7: Review questions for economic literature review

Headings	Review questions
Background	1. Author(s)
	2. Year of publication
	3. Type of publication
	4. Origin of the study
Details of voucher scheme	5. Name of voucher scheme
	6. Description of the scheme
Aim	7. Aim/objectives (primary/secondary)
Study design	8. Inclusion/ Exclusion criteria
	9. Sample size
	10. Age
	11. Gender
	12. Ethnicity
	13. Socio-economic characteristics
	14. Time horizon of analysis
	15. Data sources
Methods of data analysis	16. Assumptions made
	17. Dependent variable(s)
	18. Independent and control variables
	19. Type of analytical model
	20. Type of data set used
	21. How is the demand for food products and breastfeeding being measured?
Findings	Participation rates in voucher schemes covering Healthy Start-like products
	22. What is the participation rate?
	23. Did participation rate differ between socio-demographic, socioeconomic groups? What is the extent of such difference?
	24. Did participation rate improve/ change over time?
	25. What factors affect participation rates?
	Demand for Healthy Start-like products and breastfeeding under vouchers covering Healthy Start-like products
	26. What is the estimated demand for Healthy Start-like products and breastfeeding?
	27. Did demand for Healthy Start-like products and breastfeeding differ between socio-demographic, socioeconomic groups? What is the extent of such difference?
	28. Did demand for Healthy Start-like products and breastfeeding improve/ change over time?
	29. What factors affect demand for Healthy Start-like products and breastfeeding?
	Demand for Healthy Start-like products and breastfeeding for eligible non-participants in vouchers covering Healthy Start-like products
	30. What is the estimated demand for Healthy Start-like products and breastfeeding?
	31. Did demand for Healthy Start-like products and breastfeeding differ between socio-demographic, socioeconomic groups? What is the extent of such difference?
	32. Did demand for Healthy Start-like products and breastfeeding improve/

	change over time?
	33. What factors affect demand for Healthy Start-like products and breastfeeding?
	Demand for non- Healthy Start-like products and breastfeeding under vouchers covering Healthy Start-like products
	34. What is the estimated demand for non-Healthy Start-like products?
	35. Did demand for non- Healthy Start-like products differ between socio-demographic, socioeconomic groups? What is the extent of such difference?
	36. Did demand for non-Healthy Start-like products improve/ change over time?
	37. What factors affect demand for non -Healthy Start-like products?
	Other evidence
	38. Is there evidence of wider impacts (outside Healthy Start-like products?)
Challenges	39. Author-stated limitations
	40. Author-stated strengths
	41. Paper recommendations

Appendix 8. Quality assessment criteria (Canadian Council on Learning 2006 & 2007)

Facet of Study:	Study score 1 if :	Study score 2 if :	Study score 3 if :
Quality of Data:			
Data source	<ul style="list-style-type: none"> • Sources of data are not documented • Sources of data are unknown 	<ul style="list-style-type: none"> • Some sources of data are documented 	<ul style="list-style-type: none"> • The sources of all data used in the study are clearly documented
Data completeness	<ul style="list-style-type: none"> • A substantial amount of data is missing • No action is taken to impute missing data • No indication of how complete the data are 	<ul style="list-style-type: none"> • The researcher provides a reasonable explanation for missing data 	<ul style="list-style-type: none"> • There are no missing data • Imputation methods are being used to impute missing data
Representative sample	<ul style="list-style-type: none"> • The chosen sample is a poor representation of the population of interest • Authors do not provide any justification of the sample selection 	<ul style="list-style-type: none"> • It is uncertain whether the chosen sample could serve as a good representation of the population of interest • Authors do not provide enough justification of the sample selection 	<ul style="list-style-type: none"> • The chosen sample serves as a good representation of the population of interest • Authors provide justification of the sample selection
Data description	<ul style="list-style-type: none"> • The researcher does not describe the unit or the definition of the variables (including both dependent and independent) 	<ul style="list-style-type: none"> • The unit or the definition of the variables is described but not clear 	<ul style="list-style-type: none"> • The unit or the definition of the variables are clearly described
Quality of Model:			
Type of analysis	<ul style="list-style-type: none"> • The study does not employ any econometric methods and relies entirely on qualitative methods (trend analysis and correlation analysis) 	<ul style="list-style-type: none"> • The study uses only econometric methods for estimating the results. • No further analysis beyond model coefficients is carried out. 	<ul style="list-style-type: none"> • The study is a mix of quantitative and qualitative analyses. The researcher mainly uses econometric methods for estimating the results. Some qualitative analyses are provided for enhancement.
Model assumptions	<ul style="list-style-type: none"> • Assumptions are unrealistic or irrelevant to the study • Assumptions are made without any explanation • No assumptions were made 	<ul style="list-style-type: none"> • Assumptions are not relevant to the study • Assumptions are non-intuitive. The explanation by the researcher is not very convincing. 	<ul style="list-style-type: none"> • Assumptions are intuitive (ie OLS are intuitive) • Assumptions are necessary and important for the study, and the researcher has

Facet of Study:	Study score 1 if :	Study score 2 if :	Study score 3 if :
			provided reasonable explanations
Model specification	<ul style="list-style-type: none"> • The model is unable to address the central research question • The specification is uncommon, and the researcher does not provide any statistical test • The specification is uncommon and the researcher either does not provide any explanation or provides a poor explanation • The chosen specification does not account for the issues arising from the type of data used 	<ul style="list-style-type: none"> • The model is able to address the central research question • Although the researcher does not justify or test the specification, it is common in relevant studies • The specification is consistent with the type of data used by the researcher • The reasoning behind the choice of the current model specification is provided but some reasons are not acceptable 	<ul style="list-style-type: none"> • The model appropriately addresses the central research question • The reasoning behind the choice of the current model specification is provided and acceptable • The researcher tests the validity of the underlying assumptions of the model • The researcher justified the specification with reliable references • The specification is well suited to the type of data used by the researcher
Choice of variables	<ul style="list-style-type: none"> • The model does not include many of the influential factors • The choice of variables is not based on previous literature • There are no control variables • Proxy variables, if any, are not relevant to their underlying factors • Instrumental variables, if any, are chosen without reasoning and unacceptable 	<ul style="list-style-type: none"> • The model includes many of the influential factors • The choice of variables is based on limited analysis of previous literature • Some control variables are missing • Proxy variables, if any, are relevant to their underlying factors • Instrumental variables, if any, are chosen with reasoning but may not be acceptable 	<ul style="list-style-type: none"> • The model includes all of the influential factors • The choice of variables is based on robust analysis of previous literature • Proper control variables are used • Proxy variables, if any, are highly relevant to their underlying factors • Instrumental variables, if any, are chosen with reasoning and are acceptable
Quality of Results:			
Statistical significance	<ul style="list-style-type: none"> • Estimates that capture statistical significance are not reported • Results are not discussed in terms of statistical significance 	<ul style="list-style-type: none"> • Estimates that capture statistical significance are reported, but the researcher does not discuss the results in terms of statistical significance 	<ul style="list-style-type: none"> • Estimates that capture statistical significance are reported • Results are discussed in terms of statistical significance

Facet of Study:	Study score 1 if :	Study score 2 if :	Study score 3 if :
Estimation bias	<ul style="list-style-type: none"> • Potential sources of bias is neither discussed nor captured 	<ul style="list-style-type: none"> • Potential sources of bias are discussed but not captured 	<ul style="list-style-type: none"> • Potential bias is discussed and investigated by the researchers • Relevant techniques have been used to correct for bias
Objectivity of the discussion	<ul style="list-style-type: none"> • The researcher discussed the results in a subjective manner. Implications and inferences are made that are beyond the scope of the estimates results. The discussion substantially overstates the estimates results. • The researcher does not report any study limitation 	<ul style="list-style-type: none"> • The discussion slightly overstates the estimated results • The researcher does not adequately report the study limitations 	<ul style="list-style-type: none"> • The researcher discussed the results in an objective manner • Implications and inferences are made on the basis of the estimated results. • Use of further analysis beyond modelling in discussing the implications • The researcher adequately reports the study limitations

Definitions:

Data source: Description of “primary” and “secondary” sources of data used;

Data completeness: The extent to which data is not missing and how missingness can affect analysis plan and the results;

Data representation: The extent to which data is compactly represented;

Data description: The extent to which the definition of variables has been described/ explained;

Types of analysis: The extent to which researchers apply qualitative or quantitative analysis or a combination of both;

Model assumptions: The description and justification of any assumptions made in study in relation to the model, population etc. Also, the standard assumptions behind the multiple regression modelling need to be examined for possible violations;

Model specification: The description and justification (theoretical and/or via tests i.e. Ramsey RESET test) of selecting the appropriate functional form for the model;

Choice of variables: Description and justification of dependent and control variables, if and how they have been proxied with;

Statistical significance: Indication and discussion around the statistical significance of estimates;

Estimation bias: The extent to which any form of bias is discussed and presented along with strategies to deal with bias;

Objectivity of the discussion: The extent to which the researcher discussed the study findings in a subjective manner and reports its strengths and limitations

Appendix 9: Summary of papers excluded from the literature review

Author(s), year	Country	Aim of the study	Reasons for exclusion
(Anderson et al. 2001)	US	Evaluate the Michigan Farmers' Market Nutrition Program to determine its effects on fruit and vegetable consumption behaviour	The demand for HS-like food is expressed in energy and nutrient intake, which is one of our exclusion criteria
(Basiotis et al. 1983)	US	Analyse the relationship between household nutrient availability , food cost, FSP participation and selected socioeconomic factors	Demand for food is expressed in terms of nutritional intake, which is one of our exclusion criteria
(Basiotis et al. 1987)	US	Examine the impact of FSP participation of food cost, nutrient availability and nutrient intake	It focuses only on nutrient availability and intake, which is one of our exclusion criteria It does not refer to a targeted food - group consumption but rather to general food consumption under FSP participation. Hence we cannot make any inference to HS-like or non-HS-like food.
(Basiotis et al. 1998)	US	Examine the contribution of the FSP and WIC to the nutritional security and diet quality of low-income participating households	The demand for HS-like food is expressed in energy consumed, which is one of our exclusion criteria
(Bihan et al. 2010)	France	Analyse various determinants of low consumption of fruit and vegetables in disadvantage participants	The demand for HS-like food is expressed in intake, which is one of our exclusion criteria
(Breunig & Dasgupta, 2002)		commentary on a published article	Exclude it because it's a comment to another published paper
(Devaney & Fraker, 1986)	Puerto Rico	Examine Nutritional Assistance Program (NAP) impact of household food expenditures and diet quality	The study analyses the impact of NAP on nutrient availability, which is one of our exclusion criteria NAP is a cash assistance program and hence not coupon based scheme
(Devaney & Moffitt, 1991)	US	Assess the marginal effect of food stamp benefits on nutrients consumption and examine the factors affecting food energy availability	Demand for food is expressed in terms of nutritional intake, which is one of our exclusion criteria
(Dong & Leibtag, 2010)	US	Compare the effect of coupons as opposed to price discounts on the demand for fruit and vegetables	Not connected to a Welfare Food Programme. Limited to private supermarkets.
(Fraker et al. 1986)	Puerto Rico	Address whether replacement of food coupons	The analysis is not targeted to any HS-like food but towards general food

Author(s), year	Country	Aim of the study	Reasons for exclusion
		with cash assistance in Puerto Rico has resulted in reduction in food expenditure by participating households	spending patterns
(Frazão et al. 2007)	US	Examine household food spending patterns and how they differ across income levels.	Limited to a descriptive analysis
(Hastings & Washington, 2010)	US	Examine the cyclical effect of food expenditures and its main drivers	It analyses general food expenditure monthly cycle patterns rather than focusing on specific HS-like products
(Herman et al. 2008)	US	Determine whether an additional economic subsidy for fresh fruit and vegetables for postpartum WIC participants would result in increased consumption of fruit and vegetables	The demand for HS-like food is expressed in energy and nutrient intake, which is one of our exclusion criteria
(Herman et al. 2006)	US	Investigate whether supplemental financial support for fresh fruit and vegetables result in high uptake of the supplement	The demand for HS-like food is expressed in energy and nutrient intake, which is one of our exclusion criteria
(Ishdorj et al. 2008)	US	Investigate the effectiveness of WIC by employing a Bayesian posterior simulator method	The demand for HS-like food is expressed in energy and nutrient intake, which is one of our exclusion criteria
(Nnoaham et al. 2009)	UK	Examine the potential dietary and health effects of taxing and subsidising different foods on different income groups in the UK to support national health objectives. Analyse the effect of different taxation-subsidy regimes	The study infers to taxes and food subsidies without describing the form of subsidy. So it not very clear whether it refer to voucher schemes or not.
(Oliveira & Chandran, 2005)	US	Examine children's consumption of WIC-approved foods by WIC status	The demand for HS-like food is expressed in energy and nutrient intake, which is one of our exclusion criteria
(Pérez-Escamilla et al. 2000)	US	Examine the impact if FSP on the food security and dietary intake of low-income children from Hartford, CT, who are enrolled in WIC.	The demand for HS-like food is expressed in energy and nutrient intake, which is one of our exclusion criteria
(Pan & Jensen, 2008)	US	Investigate whether FSP affects food security status and the composition of food consumption or expenditures	The analysis is not targeted to any HS-like food but rather to food-away from home expenditures
(Perkin et al.	US	Describe racial differences in	The demand for HS-like food is

Author(s), year	Country	Aim of the study	Reasons for exclusion
1988)		food and nutrient intake in terms of observed black-white differences and also in terms of difference among black and white food stamp and non-food stamp participants.	expressed in energy and nutrient intake, which is one of our exclusion criteria
(Rose & Richards, 2004)	US	Examines the relationship between various measures of food store access and household food and vegetable use among FSP participants	The demand for HS-like food is expressed in energy and nutrient intake, which is one of our exclusion criteria
(Teters & Weber, 2007)	US	Demonstrate how difficult it is for people to live on food stamp budget	Demand for vegetables, milk and other products is expressed in terms of nutritional intake, which is one of our exclusion criteria
(Wilde & Ranney 1998)	US	Describe monthly cycles in food expenditure and food intake by food stamp recipients	The paper does not provide any numerical or any other form of quantitative or qualitative information on the demand for HS-like food
(Wilde et al. 2009)	US	Measure the impact of FSP on food spending using experimental data	It does not refer to a targeted food - group consumption but rather to at-home food spending under FSP participation. Hence we cannot make any inference to HS-like or non-HS-like food.

Appendix 10: The nine papers fully reviewed

Arcia, G.J., Crouch, L.A. Kulka, R.A. *Impact of the WIC-program on food expenditures*. American Journal of Agricultural Economics, 1990.72(1): p. 218-226.

Binkley, J.K., Eales, J.S. *The Effect Of Food Stamps On Spending For Grocery Products, 2002 Annual meeting, July 28-31, Long Beach, CA*. American Agricultural Economics Association (New Name 2008: Agricultural and Applied Economics Association), 2002.

Chavas, J.-P., Yeung, M.L. *Effects Of The Food Stamp Program On Food Consumption In The Southern United States*. Southern Journal of Agricultural Economics, 1982.14(01): p. 131.

Davis, C.G., Neenan, P.H. *Impact Of Food Stamp And Nutrition Education Programs On Food Group Expenditure And Nutrient Intake Of Low Income Households*. Southern Journal of Agricultural Economics, 1979.11(2): p. 121-129.

Huang, C.L., Fletcher, S.M., Raunika, R. *Modelling The Effects Of The Food Stamp Program On Participating Households' Purchases: An Empirical Application*. Southern Journal of Agricultural Economics, 1981.13(2).

Kaushal, N., Gao, Q. *Food Stamp Program and Consumption Choices*. Columbia University, New York. 2010

Lanfranco, B.A., Ames, G.C.W., Huang, C.L. Stegeline, F.E. *WIC And The Demand For Food By The Hispanic Community In The United States*. Journal of Food Distribution Research, 2001.32(1).

Reed, A.J., Levedahl, J.W. *Food Stamps and the Market Demand for Food*. American Journal of Agricultural Economics, 2010.92(5): p. 1392-1400.

Salathe, L.E. *The Food Stamp Program and Low-income Households' Food Purchases*. Agricultural Economics Research, 1980.32(4): p. 33-41.

Appendix 11: Quality criteria and rating for economic studies of demand

The table below shows the scores attributed to the 9 empirical studies. Two studies were judged to be of good quality, six of fair quality and one of poor quality. The two good quality studies (Kaushal & Gao, 2010 and Salathe, 1980) both presented data comprehensively, although Kaushal and Gao (2010) did not refer to the existence of or methods to impute missing data. The quality of models used in both studies was good, although the choice of “single low-educated mothers” as a proxy for low-income families used in Kaushal and Gao (2010) is questionable. Estimation bias was discussed but not captured in either study. The one study considered ‘poor’ (Binkley & Eales, 2002) presented none of the assumptions behind the modelling and did not include influential factors. Estimation bias was neither discussed nor captured and the discussion did not discuss possible causes of bias. The remaining studies assessed to be of “fair” quality all presented good quality models. However, they tended to lack completeness of data and dropped ‘points’ in the presentation of results, with poorer accounting for estimation bias.

Quality scores of papers reviewed

Authors	Quality of Data				Quality of Model				Quality of Results			Total Score	Quality
	Data source	Data completeness	Data Representatio	Data Description	Type of	Model Assumptions	Model Specification	Choice of Variables	Statistical Significance	Estimation	Objectivity of discussion		
Salathe, 1980	3	3	3	3	3	3	3	2	3	2	3	31	Good ^a
Kaushal & Gao, 2010	3	1	3	3	3	3	2	3	3	2	2	28	Good ^a
Lanfranco et al. 2001	3	1	3	3	3	3	3	2	2	2	2	27	Fair ^b
Chavas & Yeung, 1982	3	3	2	2	3	3	3	2	3	1	2	27	Fair ^b
Arcia et al. 1990	3	1	3	3	3	3	3	2	3	1	2	27	Fair ^b
Davis & Neenan, 1979	3	3	2	3	3	2	3	2	2	1	2	26	Fair ^b
Huang et al. 1981	3	2	2	3	3	3	3	2	3	1	2	25	Fair ^b
Reed & Levedahl, 2010	2	2	2	1	3	3	3	2	3	2	2	22	Fair ^b
Binkley & Eales, 2002	3	2	2	2	3	1	2	1	2	1	2	21	Poor ^c

a: ‘good’ quality study (score 28-33) b: ‘fair’ quality study (score 22-27) c: ‘poor’ quality study (score 0-21)

Appendix 12: Data extracted, by study

BLOCK 1: BACKGROUND INFORMATION OF STUDY	
Reviewed by	SP & MD
Title	Modelling the effects of the food stamp programme on participating households' purchases: an empirical application
Author(s)	Huang et al.
Year of publication	1981
Type of publication (e.g. journal article)	Journal article
Origin of the study (country, state)	US
BLOCK 2: STUDY DESIGN	
Characteristics of the voucher scheme relevant to Healthy Start products	
Name of the voucher scheme	Food Stamps
Description of the scheme	FSP provides direct subsidies in the form of additional food dollars to low-income households to enhance the purchasing of nutritionally adequate diets.
Study Characteristics	
Aim/objectives (primary, secondary)	<p>Primary Aim: To refine the theoretical framework and its application to analyse the effect of participation in the previous FSP on low-income households' food purchasing patterns.</p> <p>Secondary Aim: Explore demographic and socioeconomic factors that can explain program participation.</p>
Inclusion/exclusion criteria (study definition of eligibility etc)	Not stated explicitly.
Voucher scheme definition of eligibility	Low-income (not defined explicitly)
Sample size	<p>sample Size₁: 309 (full- FSP participants)</p> <p>sample Size₂: 199 (partial- FSP participants)</p> <p>sample Size₃: 2,441 (eligible non- FSP participants)</p> <p>All numbers refer to number of households.</p>
Age	N/A
Gender	N/A
Ethnicity	<p>Ethnicity (white): 61.81% (full- FSP participants)</p> <p>57.79% (partial- FSP participants)</p> <p>84.64 % (non- FSP participants)</p>

SES	h'hold size: 3.19 (full- FSP participants) 3.26 (partial- FSP participants) 2.86 (eligible non- FSP participants) urbanisation: 61% (full- and partial- FSP participants) 48.63(eligible non- FSP participants)
BLOCK 3A: METHODS OF DATA ANALYSIS	
Time horizon of analysis	One year 1972-73
Data sources	Consumer Expenditure Diary Survey
Assumptions made	Participation in FS would increase household food purchases. The slopes of Engel curve for full participants and eligible non-participants are expected to be positive, with no difference in magnitude between the two groups because relative price ratios remain unchanged.
Dependent variable (s)	HH food expenditure for a food item – 4 food items (meat product, diary product, cereal and bakery, fruits and vegetables)
Independent and control variables	Household income(represents the income of full participating and eligible non-participating food stamp households), value of food stamp, food stamp participation status (full participant, partial participant), Household size (persons), race (% white), location (north central, south, west), residence (% urban)
Analytical model:	Tobit model to account for truncated expenditure data.
Type of data set used:	Cross-sectional.
How is the demand for food products and breastfeeding being measured?	The net effect of FS participation on expenditure of a food item
BLOCK 3B: FINDINGS OF THE ANALYSIS	
Participation rates in voucher schemes covering Healthy Start products	
What was the participation rate?	Not stated explicitly
Difference in participation rate by socio-demographic/economic group.	The FSP participant households are characterised with larger household size, greater food expenditures and lower household income as compared with the FSP eligible non-participants.
Did participation rate improve/ change over time?	N/A
Factors affecting participation rates?	N/A
Demand for healthy start products and breastfeeding under vouchers covering Healthy Start products	
Estimated demand	<i>Fruits and vegetables:</i> Predicted probability of actual purchase in full participant =0.947 Income elasticity (full participant) = 0.106 <i>Dairy:</i> Predicted probability of actual purchase in full participant =0.962

	Income elasticity (full participant) = 0.147																																																																											
Difference in participation rate by socio-demographic/economic group.	All independent variables had significant effect TABLE 2. Regression Results of Tobit Analysis for Selected At-Home Food Expenditures <table><tr><th>Variable^a</th><th>Nest products</th><th>Dairy products</th><th>Cereal and bakery products</th><th>Fruits and vegetables</th></tr><tr><td>Intercept</td><td>4.194 (6.994)^b</td><td>-.232 (-1.070)</td><td>.478 (2.681)</td><td>.551 (2.308)</td></tr><tr><td>Income</td><td>3.27E-4 (4.893)</td><td>1.84E-4 (7.598)</td><td>1.10E-4 (5.498)</td><td>1.41E-4 (5.281)</td></tr><tr><td>Income₂</td><td>-1.25E-5 (-3.23E-2)</td><td>-5.23E-5 (0.370)</td><td>-2.30E-4 (-1.979)</td><td>-2.09E-4 (-1.272)</td></tr><tr><td>Bonus₂</td><td>-5.94E-3 (-.288)</td><td>2.94E-3 (.393)</td><td>-7.65E-3 (-1.246)</td><td>-3.13E-3 (-.372)</td></tr><tr><td>Income₂*Bonus₂</td><td>1.23E-7 (2.71E-2)</td><td>9.85E-7 (.596)</td><td>2.46E-6 (1.800)</td><td>1.76E-6 (.932)</td></tr><tr><td>FS₁</td><td>4.853 (11.214)</td><td>1.568 (10.026)</td><td>1.328 (10.254)</td><td>1.575 (9.151)</td></tr><tr><td>FS₂</td><td>-1.994 (-1.344)</td><td>-.135 (-.246)</td><td>.422 (.953)</td><td>-.287 (-.468)</td></tr><tr><td>A</td><td>2.122 (9.436)</td><td>.617 (7.607)</td><td>.677 (10.041)</td><td>.568 (6.347)</td></tr><tr><td>NC</td><td>-2.040 (-5.244)</td><td>-.617 (-4.394)</td><td>-.560 (-4.816)</td><td>-.722 (-4.651)</td></tr><tr><td>South</td><td>-1.683 (-4.542)</td><td>-.742 (-5.533)</td><td>-.458 (-4.132)</td><td>-.770 (-5.196)</td></tr><tr><td>West</td><td>-2.239 (-5.255)</td><td>-.815 (-5.295)</td><td>-.693 (-5.438)</td><td>-.499 (-2.941)</td></tr><tr><td>White</td><td>-2.398 (-6.777)</td><td>1.109 (8.589)</td><td>.393 (3.722)</td><td>.301 (2.131)</td></tr><tr><td>Urban</td><td>.298 (1.123)</td><td>1.24E-2 (.129)</td><td>-.138 (-1.735)</td><td>.236 (2.220)</td></tr><tr><td>Standard error of estimate</td><td>6.829</td><td>2.469</td><td>2.048</td><td>2.722</td></tr></table>	Variable ^a	Nest products	Dairy products	Cereal and bakery products	Fruits and vegetables	Intercept	4.194 (6.994) ^b	-.232 (-1.070)	.478 (2.681)	.551 (2.308)	Income	3.27E-4 (4.893)	1.84E-4 (7.598)	1.10E-4 (5.498)	1.41E-4 (5.281)	Income ₂	-1.25E-5 (-3.23E-2)	-5.23E-5 (0.370)	-2.30E-4 (-1.979)	-2.09E-4 (-1.272)	Bonus ₂	-5.94E-3 (-.288)	2.94E-3 (.393)	-7.65E-3 (-1.246)	-3.13E-3 (-.372)	Income ₂ *Bonus ₂	1.23E-7 (2.71E-2)	9.85E-7 (.596)	2.46E-6 (1.800)	1.76E-6 (.932)	FS ₁	4.853 (11.214)	1.568 (10.026)	1.328 (10.254)	1.575 (9.151)	FS ₂	-1.994 (-1.344)	-.135 (-.246)	.422 (.953)	-.287 (-.468)	A	2.122 (9.436)	.617 (7.607)	.677 (10.041)	.568 (6.347)	NC	-2.040 (-5.244)	-.617 (-4.394)	-.560 (-4.816)	-.722 (-4.651)	South	-1.683 (-4.542)	-.742 (-5.533)	-.458 (-4.132)	-.770 (-5.196)	West	-2.239 (-5.255)	-.815 (-5.295)	-.693 (-5.438)	-.499 (-2.941)	White	-2.398 (-6.777)	1.109 (8.589)	.393 (3.722)	.301 (2.131)	Urban	.298 (1.123)	1.24E-2 (.129)	-.138 (-1.735)	.236 (2.220)	Standard error of estimate	6.829	2.469	2.048	2.722
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Did demand for healthy start products change over time?	N/A																																																																											
Factors affecting demand	ethnicity, location and income																																																																											
Demand for healthy start products and breastfeeding for eligible non-participants in vouchers covering Healthy Start products																																																																												
Estimated demand	<i>Fruits and vegetables:</i> Predicted probability of actual purchase in eligible non- participants =0.847																																																																											

	Income elasticity (eligible non- participants) = 0.176 <i>Dairy:</i> Predicted probability of actual purchase in eligible non- participants =0.875 Income elasticity (eligible non- participants) = 0.237
Difference in participation rate by socio-demographic/economic group.	See above (included)
Did demand for healthy start products change over time?	N/A
Factors affecting demand	ethnicity, location and income
Demand for non- healthy start products under vouchers covering Healthy Start products	
Estimated demand	<i>meat:</i> Predicted probability of actual purchase in full participant =0.975 Income elasticity (full participant) = 0.087 <i>cereal and bakery:</i> Predicted probability of actual purchase in full participant =0.976 Income elasticity (full participant) = 0.097
Difference in participation rate by socio-demographic/economic group.	Yes (all independent variable included in the model).
Did demand for healthy start products change over time?	N/A
Factors affecting demand	Table 2
Other evidence	
Evidence of wider impacts (outside healthy start products)	Not explicitly discussed
BLOCK 4: CHALLENGES	
Author-stated limitations	The validity and applicability of the findings are limited by the availability of the data
Author-stated strengths	It isolates and identifies certain key parameters governing FSP participants' food purchasing behaviour. It also decomposes total elasticities into conditional and market participation.
Stated recommendations	Non stated.

BLOCK 1: BACKGROUND INFORMATION OF STUDY	
Reviewed by	SP & MD
Title	Food Stamps and the market demand for food
Author(s)	Reed & Levedahl
Year of publication	2010
Type of publication (e.g. journal article)	Journal article
Origin of the study (country, state)	US
BLOCK 2: STUDY DESIGN	
Characteristics of the voucher scheme relevant to Healthy Start products	
Name of the voucher scheme	The Supplemental Nutrition Assistance Programme (SNAP) [former FSP]
Description of the scheme	SNAP is another name for Food Stamp programme. No description is provided.
Study Characteristics	
Aim/objectives (primary, secondary)	To provide estimated for market demand responses to SNAP benefits based on a model that aggregates over all households and that allows for nonlinear household Engel curves.
Inclusion/exclusion criteria (study definition of eligibility etc)	Not stated
Voucher scheme definition of eligibility	Low-income (not specified)
Sample size	Not stated
Age	N/A
Gender	N/A
Ethnicity	N/A
SES	N/A
BLOCK 3A: METHODS OF DATA ANALYSIS	
Time horizon of analysis	1980-2006
Data sources	Various including Consumer Expenditure Survey , US Census Bureau
Assumptions made	Non-linear aggregation implies that only the households that receive benefits contribute to market demand responses
Dependent variable (s)	Market average bundle share for a food item
Independent and control variables	Effective cash income; price index;
Analytical model:	AIDS
Type of data set used:	Time-series
How is the demand for food products and breastfeeding being measured?	Own and cross-price elasticities are estimated for 9 food items and 1 category as non-food (food stamp elasticity).

BLOCK 3B: FINDINGS OF THE ANALYSIS	
Participation rates in voucher schemes covering Healthy Start products	
What was the participation rate?	Not known
Difference in participation rate by socio-demographic/economic group.	N/A
Did participation rate improve/ change over time?	Not known
Factors affecting participation rates?	N/A
Demand for healthy start products and breastfeeding under vouchers covering Healthy Start products	
Estimated demand	<i>Own price elasticity</i> (discuss differences) dairy:-0.643 fruit: -0.708 vegetable:-0.691 <i>SNAP elasticity</i> : dairy:0.02 fruit: 0.022 vegetable:0.022
Difference in participation rate by socio-demographic/economic group.	Not known
Did demand for healthy start products change over time?	Not known
Factors affecting demand	Not known
Demand for healthy start products and breastfeeding for eligible non-participants in vouchers covering Healthy Start products	
[Not covered in paper]	
Demand for non- healthy start products under vouchers covering Healthy Start products	
Estimated demand	<i>Own price elasticity</i> (discuss differences) beef:-0.146 pork: -0.94 poultry:-0.318 <i>SNAP elasticity</i> : beef:0.026 pork: 0.021 poultry:0.019
Difference in participation rate by socio-demographic/economic group.	Not known
Did demand for healthy start products change over time?	Not known
Factors affecting demand	Not known
Other evidence	
Evidence of wider impacts	not examined
BLOCK 4: CHALLENGES	
Author-stated limitations	None
Author-stated strengths	AIDS can be used to estimate the market impacts of economic policies that target households according to their income.
Stated recommendations	None stated

BLOCK 1: BACKGROUND INFORMATION OF STUDY	
Reviewed by	SP & MD
Title	The effects of food stamps on spending for grocery products
Author(s)	Binkley & Eales
Year of publication	2002
Type of publication (e.g. journal article)	Conference paper
Origin of the study (country, state)	US
BLOCK 2: STUDY DESIGN	
Characteristics of the voucher scheme relevant to Healthy Start products	
Name of the voucher scheme	Food Stamps
Description of the scheme	Not described in details in the paper. An indicative definition from the introductory paragraph: Food Stamp programme aims to improve the quality of the diet of low-income households.
Study Characteristics	
Aim/objectives (primary, secondary)	<p>To estimate the effect of food stamps on sales across specific grocery products by:</p> <ul style="list-style-type: none"> (a) Examining whether differences in food stamp usage across market areas alters the sales shares of grocery products (b) Separating the effects of poverty and food stamps <p>The secondary aim is to assess the potential usefulness of data at the market level in addressing problems with survey data</p>
Inclusion/exclusion criteria (study definition of eligibility etc)	Not specifically mentioned and hard to extract from the given information. Participation in food stamps appears to be one inclusion criteria.
Voucher scheme definition of eligibility	Not mentioned specifically, other than saying Food Stamps are for lower income families.
Sample size	Wholesale grocery and drug warehouses in 54 marketing areas throughout the US, which accounted for 85% of US branded grocery product sales
Age	Not known/ not applicable (?aggregate data analysis)
Gender	Not known/ not applicable (?aggregate data analysis)
Ethnicity	% of households that are Hispanic, African American; and other ethnic origin included but proportion not known.
SES	% of household in poverty; average per capita income; % of population under 15; % of single parent households; % of population over 65; the 1990 unemployment rate; female labour force participation; a set of regional indicators
BLOCK 3A: METHODS OF DATA ANALYSIS	
Time horizon of analysis	1980-mid1991
Data sources	Sales Area Marketing, Inc. (SAMI) market data. SAMI market data is an extensive set of food marketing data. The data was collected from wholesale grocery and drug warehouses in 54 marketing areas throughout the US, which

	accounted for 85% of US branded grocery product sales. The data lists price, cases, sales, and share figures for every variation of every brand. Store label data was only available as total cases and total sales in each market. No information on produce, unbranded meat or milk and eggs is included. US Census and other relevant data were used to create socio-demographic variables. 1990 County Food Stamp Data from USDA was also used. A special algorithm was used to aggregate county data to the SAMI regions.
Assumptions made	Because food stamps are food-specific increase in income, it can be expected that FS leads to a shift into more desirable, income-elastic grocery categories, perhaps more nutritious ones.
Dependent variable (s)	Per capita of food stamp benefits. Log of market share of a food category
Independent and control variables	% of households that are Hispanic, African American; and other ethnic origin % of household in poverty; average per capita income; % of population under 15; % of single parent households; % of population over 65; the 1990 unemployment rate; female labour force participation; a set of regional indicators
Analytical model:	Ordinary Least Squares although it is not mentioned specifically.
Type of data set used:	Mix of cross sectional data drawn from various sources (see above). Note that SAMI data is treated as cross-sectional.
How is the demand for food products and breastfeeding being measured?	Two estimations are performed: First per capita of food stamp benefits are regressed on the independent variables listed above (participation equation). Then, the log of market share of a food category is regressed on the log of the variables in the participation equation including per capita food stamp benefit. Numerous equations were estimated based on the food category (e.g. canned milk, infant formula, frozen vegetables, etc.)
BLOCK 3B: FINDINGS OF THE ANALYSIS	
Participation rates in voucher schemes covering Healthy Start products	
What was the participation rate?	Not directly reported. The FS benefit as percent of grocery spending varied significantly – lowest on the East and West coast and highest on the South.
Difference in participation rate by socio-demographic/economic group.	Yes. The coefficients on per capita FS benefit equations as follows (*=significant): Poverty = 0.75* Income = 0.00* (described as “unexpected, perhaps inexplicable” by the authors) Other Ethnic = -0.75* Kids = 50.19* Female labour force participation = -0.45* West coast = -1.79* Unemployment, being above 64, being Hispanic or African American had insignificant effect.
Did participation rate improve/ change over time?	Cannot say.

Factors affecting participation rates?	<p>Poverty = 0.75*</p> <p>Income = 0.00* (described as “unexpected, perhaps inexplicable” by the authors)</p> <p>Other Ethnic = -0.75*</p> <p>Kids = 50.19*</p> <p>Female labour force participation = -0.45*</p> <p>Regions significant (e.g. West coast = -1.79*)</p> <p>Unemployment, being above 64, being Hispanic or African American had insignificant effect.</p>
Demand for healthy start products and breastfeeding under vouchers covering Healthy Start products	
Estimated demand	<p>FS spending increases the shares of “basic goods”.</p> <p>FS increases the use of more income-elastic goods.</p> <p>Little evidence that FS divert consumers to either more or less nutritious foods.</p> <p>Indicative result:</p> <p>FS cause modest shifts to more expensive food categories that have appeal in terms of quality and convenience.</p> <p>No breastfeeding included in the analysis.</p>
Difference in participation rate by socio-demographic/economic group.	Poverty is reported to influence the choice of food category.
Did demand for healthy start products change over time?	Not known.
Factors affecting demand	See above.
Demand for healthy start products and breastfeeding for eligible non-participants in vouchers covering Healthy Start products [Not covered in paper]	
Demand for non- healthy start products under vouchers covering Healthy Start products [Not covered in paper]	
Other evidence	
Evidence of wider impacts (outside healthy start products)	Some of the above reported impacts are the impact of FS on market share of grocery sales. No impact wider than this is reported.
BLOCK 4: CHALLENGES	
Author-stated limitations	This is an indicative study with no attempt to test any hypothesis.
Author-stated strengths	New study that considers the effect of Food Stamps on sales across specific grocery products (and not on major nutrients or broad classes of food as done by previous research).
Stated recommendations	No recommendation reported.

BLOCK 1: BACKGROUND INFORMATION OF STUDY	
Reviewed by	SP & MD
Title	Impact of Food Stamp and Nutrition Education programmes on food group expenditure and nutrient intake of low-income households
Author(s)	Davis & Neenan
Year of publication	1979
Type of publication (e.g. journal article)	Journal Article
Origin of the study (country, state)	US
BLOCK 2: STUDY DESIGN	
Characteristics of the voucher scheme relevant to Healthy Start products	
Name of the voucher scheme	Food Stamp Programme (FSP) and Expanded Food and Nutrition Education Programme (EFNEP)
Description of the scheme	No description provided
Study Characteristics	
Aim/objectives (primary, secondary)	(1) To identify selected food group and corresponding nutrient intake responses associated with participation in the FSP and EFNEP; (2) To simulate the nutritional impact of alternative policy mechanisms with joint FSP and EFNEP participation; (3) To explore policy implications for food and nutrition programme planning.
Inclusion/exclusion criteria (study definition of eligibility etc)	Include people who live in high poverty rural area
Voucher scheme definition of eligibility	Low-income families (not specified)
Sample size	228 families
Age	N/A
Gender	N/A
Ethnicity	White and non-White
SES	Household income; family size; number of children in the family; ethnic background; female HH head; number eating meals away from home; HH is employed; rural/urban; education; HH's perception of special health needs;
BLOCK 3A: METHODS OF DATA ANALYSIS	
Time horizon of analysis	One year, 1976
Data sources	1976 EFNEP records restricted to high-poverty incidence rural county in central Florida.
Assumptions made	The survey responses can be assessed in terms of four alternative food expenditure patterns (meat and protein; dairy product; fruit and vegetable; bread and grain product) and their associated nutrient intake levels for protein,

	vitamin A, vitamin C, calcium and iron.
Dependent variable (s)	Food group expenditure per month for each of the following item: meat and protein; dairy product; fruit and vegetable; bread and grain product
Independent and control variables	Household income (income per month including the sum of earnings for all h'hold members, welfare payments, pensions and social security), bonus stamp value, total food expenditures per month, number of person in h'hold, life cycle family composition (no children, children aged 0-6, 7-13, 14-20, first child gone, retirement couple), ethnic background (white, non-white), head h'hold female, number of h'hold members regularly eating meals away from home, employment (1 if homemaker is employed), age of homemaker, location (rural nonfarm, urban), education (less than grade 9, grades 9-12), health need (1 if pregnant, diabetes etc), months of participation in EFNEP, number of food demonstrations with ENER aides (meat and protein products, dairy, fruit and veg and grain products)
Analytical model:	Ordinary least Squares
Type of data set used:	Cross-section
How is the demand for food products and breastfeeding being measured?	Through regression coefficients of Food Stamp participation variable
BLOCK 3B: FINDINGS OF THE ANALYSIS	
Participation rates in voucher schemes covering Healthy Start products	
What was the participation rate?	Not known
Difference in participation rate by socio-demographic/economic group	Yes. The text suggests they differ in terms of income and household size.
Did participation rate improve/change over time?	Not applicable
Factors affecting participation rates?	Not available
Demand for healthy start products and breastfeeding under vouchers covering Healthy Start products	
Estimated demand	The marginal propensity to spend (MPS) for: <i>fruits and vegetables</i> :0.220, <i>dairy products</i> : 0.053
Difference in participation rate by socio-demographic/economic group.	This is not discussed explicitly in the text.
Did demand for healthy start products change over time?	N/A
Factors affecting demand	Value of food stamp:(coef: 0.053 dairy), (coef: 0.22 fruit & vegs), (coef: 3.31 dairy), (coef: -0.918 fruit & vegs) Eating away from home: -(coef: -2.179 dairy), (coef: -2.861 fruit & vegs, Low-level education: -(coef: -3.763 dairy), (coef: -2.633 fruit & vegs) Non-white ethnicity: (coef: -11.799 dairy), (coef: 17.42 fruit & vegs)
Demand for healthy start products and breastfeeding for eligible non-participants in vouchers covering Healthy Start products	
Estimated demand	N/A

Difference in participation rate by socio-demographic/economic group.	N/A.
Did demand for healthy start products change over time?	N/A
Factors affecting demand	N/A.
Demand for non- healthy start products under vouchers covering Healthy Start products	
Estimated demand	The marginal propensity to spend (MPS) for: <i>Meat & protein</i> : 0.328, <i>Bread & grain</i> : 0.229
Difference in participation rate by socio-demographic/economic group.	This is not discussed explicitly in the text.
Did demand for healthy start products change over time?	N/A
Factors affecting demand	Value of food stamp:+ (coef: 0.65 Meat & protein), (coef: 0.22 Bread & grain) H'hold size: (coef: 10.93 Meat & protein)(coef: -1.05 Bread & grain) Eating away from home: (coef: -0.46 Meat & protein)(coef: -2.74 Bread & grain)Low-level education: -(coef: -3.64 Meat & protein)(coef: -3.38 Bread & grain) Non-white ethnicity: + (coef: 0.06 Meat & protein) (coef: 6.32 Bread & grain)
Other evidence	
Evidence of wider impacts (outside healthy start products)	The impact on nutritional intake is estimated. Bonus income had no significant impact on vitamin C nutrient level in FS EFNEP and FS non-EFNEP households. Policies that combine some form of nutrition education with income supplementation are also effective in increasing the baseline nutrient levels.
BLOCK 4: CHALLENGES	
Author-stated limitations	The data was based on 24-hour recall which questions the validity of the findings.
Author-stated strengths	None stated explicitly.
Stated recommendations	No recommendations were put forward.

BLOCK 1: BACKGROUND INFORMATION OF STUDY	
Reviewed by	SP & MD
Title	Effects of the Food Stamp Programme on food consumption in the Southern United States
Author(s)	Chavas & Yeung
Year of publication	1982
Type of publication (e.g. journal article)	Journal article
Origin of the study (country, state)	US
BLOCK 2: STUDY DESIGN	
Characteristics of the voucher scheme relevant to Healthy Start products	
Name of the voucher scheme	Food Stamps
Description of the scheme	The aim of the FSP is to promote the nutritional status of low-income families and to support farm income by increasing food demand.
Study Characteristics	
Aim/objectives (primary, secondary)	To examine the influence of participation in the FSP on the food consumption of low-income households in the Southern region of the United States Secondary, to examine the impact of selected socio-demographic factors on food-expenditures for low-income households.
Inclusion/exclusion criteria (study definition of eligibility etc)	Southern reason is included based on the poverty level and earlier research that food consumption behaviour in the South differs from that in the rest of the country. 15 food commodities included (e.g. cereals and bakery; beef and veal; fruits; vegetables). Full list in Table 2.
Voucher scheme definition of eligibility	Low-income (i.e. maximum income adjusted by family size)
Sample size	659 low-income families
Age	Not applicable
Gender	Not applicable
Ethnicity	Black or other
SES	Total family income (cents/week); Number of family members in various age groups; housing tenure; marital status, education, occupation of head of the household; the type of industry the head of the household works in; location
BLOCK 3A: METHODS OF DATA ANALYSIS	
Time horizon of analysis	One year, 1972-73
Data sources	Consumer Expenditure Survey 1972-73
Assumptions made	FS families purchase luxury food items with their stamps. This is modelled as expenditure as a function of income, bonus stamps and a set of socio-economic variables having some influence on household food preferences. Permanent income hypothesis is assumed.

	Both linear and non-linear functional forms are assumed and tested.
Dependent variable (s)	Weekly household expenditure on the i^{th} commodity (cents)
Independent and control variables	Total family income (cents/week); Number of family members in various age groups (<15; 15-25; 25-45; 45-65; >65); home owner (1/0) marital status (married 1/0), race (black 1/0); college education (1/0), self-employed (1/0) of head of the household; the type of industry the head of the household works in (agriculture and related 1/0; trade/service/public admin 1/0); location (population>50k 1/0)
Analytical model:	Seemingly unrelated regression (SUR) for 15 food items
Type of data set used:	Cross-sectional
How is the demand for food products and breastfeeding being measured?	Examining the net impact of bonus stamps on food expenditures of 15 items
BLOCK 3B: FINDINGS OF THE ANALYSIS	
Participation rates in voucher schemes covering Healthy Start products	
What was the participation rate?	118 out of 659 low-income families. - 18%
Did participation rate differ between socio-demographic, socio-economic groups? What is the extent of such difference?	Yes. Average family size 2.91 in participants and 2.25 in non-participants; average weekly income 5438 cents and 7653 cents respectively. No statistical significance reported. The texts suggest that “on the average, a participant household has a larger family size, a lower income, and spends more on food than a non-participant household”.
Did participation rate improve/ change over time?	Not applicable
Factors affecting participation rates?	family size and income
Demand for healthy start products and breastfeeding under vouchers covering Healthy Start products	
Estimated demand	<i>Marginal propensity to spend for:</i> Dairy: 0.0504, Fruit:-0.0024, Vegetables: 0.027 <i>Income elasticity:</i> Dairy: 0.4019, Fruit: 0.3298, Vegetables: 0.0985,
Difference in participation rate by socio-demographic/economic group.	Yes. In the regression, there is mixed effects of various socio-economic variables. For example, FSP is more effective on black families living outside SMSA with a household head with no college education
Did demand for healthy start products change over time?	Not applicable
Factors affecting demand	Dairy products through interaction with race (+) and education (-) Fruits through interaction with race(+) and family size (-) Vegetables through location (+)
Demand for healthy start products and breastfeeding for eligible non-participants in vouchers covering Healthy Start products	
Estimated demand	Not applicable
Difference in participation rate by socio-demographic/economic group.	Not applicable

Did demand for healthy start products change over time?	Not applicable
Factors affecting demand	Not applicable
Demand for non- healthy start products under vouchers covering Healthy Start products	
Estimated demand	<p><i>Marginal propensity to spend for:</i> Cereals: 0.08, Beef: 0.054, Pork: 0.052, Poultry: 0.033, Eggs: 0.013, Sugar and sweets: 0.019, Fat and oil: 0.025, Non-alcohol beverages: 0.008, Alcoholic beverages; 0.013, Prepared food:0.022</p> <p><i>Income elasticity:</i> Cereals: 0.3623, Beef: 0.2890, Pork: 0.3743), Poultry: 0.2531, Eggs: 0.3592, Sugar and sweets: 0.9148, Fat and oil: -0.0784, Non-alcohol beverages: 0.3238, Alcoholic beverages; 1.3781, Prepared food:0.54</p>
Difference in participation rate by socio-demographic/economic group.	Yes. In the regression, there is mixed effects of various socio-economic variables. For example, FSP is more effective on black families living outside SMSA with a household head with no college education
Did demand for healthy start products change over time?	Not applicable
Factors affecting demand	<p>beef and prepared food through interaction with race (-)</p> <p>eggs, fats & oils and non-alcoholic beverages through interaction with location (+)</p>
Other evidence	
Evidence of wider impacts (outside healthy start products)	FSP is a fairly effective welfare program against poverty
BLOCK 4: CHALLENGES	
Author-stated limitations	More research needed to investigate further the influence if number of socio-demographic variables on food purchase behaviour
Author-stated strengths	Not discussed.
Stated recommendations	More research needed to investigate further the influence of a number of socio-demographic variables on food purchase behaviour in low-income families.

BLOCK 1: BACKGROUND INFORMATION OF STUDY	
Reviewed by	JFR & MD
Title	The Food Stamp Program and low-income households' food purchases
Author(s)	Salathe
Year of publication	1980
Type of publication (e.g. journal article)	Journal paper
Origin of the study (country, state)	US
BLOCK 2: STUDY DESIGN	
Characteristics of the voucher scheme relevant to Healthy Start products	
Name of the voucher scheme	Food Stamp Programme
Description of the scheme	During 1972 -74 households qualifying for FSP received an allotment of food coupons based on the number of people in the HH; the recipient paid an amount (the purchase requirement) for the allotment based on the net total income of the HH. The difference between the purchase requirement and the value of the food coupon was referred to as the 'bonus' (value of 'free' coupons received). In 1979 this purchase requirement was removed and qualifying HH receive an allotment of food coupons equal to the value of the bonus.
Study Characteristics	
Aim/objectives (primary, secondary)	<p>Primary: To assess how food stamp recipients use their buying power for food compared with low-income households who do not participate in FSP</p> <p>Secondary: To provide a base for assessing the impact of removing the purchase requirement</p>
Inclusion/exclusion criteria (study definition of eligibility etc)	<p>Group 1: participants in FSP who provided all information on value of food coupons received or paid for as well as before tax income in previous year showing that it exceeded twice the maximum income eligibility criteria during 1973-74</p> <p>Group 2: Subsample of those not on FSP who had incomes similar to FSP participants (i.e. eligible non-participants)</p>
Voucher scheme definition of eligibility	Not given in paper
Sample size	557 = FSP participants; n = 1,697 HH that were eligible non-participants.
Age	<p>FSP: 24% <10, 19% >65</p> <p>eligible non-participants: 14% <10, 32% >65</p>
Gender	Na
Ethnicity	<p>FSP: 40% HH black</p> <p>eligible non-participants: 20% black HH</p>
SES	<p>FSP group:</p> <p>average weekly per capita before tax income = \$24.2</p>

	HH size = 3.4 Eligible non-participants group: average weekly per capita before tax income = \$27.23 HH size = 2.87
BLOCK 3A: METHODS OF DATA ANALYSIS	
Time horizon of analysis	1973-74
Data sources	1972-74 Bureau of Labor Statistics (BLS) Consumer Expenditure Diary Survey (CEDs). FSP data came from the second 12 month period.
Assumptions made	Model assumes from an alternative theoretical model that the relationship between food expenditures and income for participant households is not continuous. This requires identifying participant HHs who spend no more than the value of food stamps received at home. This was proxied in a 2 step estimation: <ul style="list-style-type: none"> a) Estimating the functional relationship between the food expenditures and HH characteristics of eligible non-participant HH b) Used the estimated relationship to derive estimates of eligible nonparticipants' food expenditures, assuming they possess the same characteristics as the participant HH The, the difference between food expenditures (after adjusting for HH characteristics) is a measure of the impact of the FSP.
Dependent variable (s)	Per capita weekly household expenditure 20 food categories (each with separate regression) including: all food, food at home, cereal products, bakery products, beef and veal, pork, other red meats, poultry, fish, eggs, dairy products, fresh fruits, fresh vegetables, processed fruits, processed vegetables, sugar and other sweeteners, fats and oils, non-alcoholic beverages, miscellaneous prepared foods, food away from home.
Independent and control variables	Urbanisation (urban residence, other), residence (Northeastern, North or south region), Ethnicity (not black, otherwise), income (per capita weekly before tax income), household composition (proportion of members in the h'hold under 11 yrs, 11-20 yrs, 36-50 yrs, 51-65, 65+ yrs old), household size (natural log of household size)
Analytical model:	Least squares
Type of data set used:	Cross-section
How is the demand for food products and breastfeeding being measured?	Weekly HH expenditure. Nothing on breastfeeding.
BLOCK 3B: FINDINGS OF THE ANALYSIS	
Participation rates in voucher schemes covering Healthy Start products	
What was the participation rate?	Na 5.7%
Difference in participation rate by socio-demographic/economic group	Na
Did participation rate improve/ change	Na

over time?	
Factors affecting participation rates?	Na
Demand for healthy start products and breastfeeding under vouchers covering Healthy Start products	
Estimated demand	<p>Impact of FSP on HS type product</p> <p>The FSP has a statistically significant positive impact on:</p> <ul style="list-style-type: none"> - fresh vegetables, raising mean expenditure per capita per week from \$0.37 to \$0.42 - dairy, raising mean expenditure per capita per week from \$1.01 to \$1.14 <p>There was no statistically significant impact on purchase of fresh fruits</p>
Difference in participation rate by socio-demographic/economic group.	Na, assumed to be the same as eligible non-participants
Did demand for healthy start products change over time?	Na - assumed to be the same as eligible non-participants
Factors affecting demand	<p>Na - assumed to be the same as eligible non-participants</p> <p>FSP participation has a positive and statistically significant effect on consumption of dairy products and vegetables. It has a positive but not statistically significant effect on fruit consumption.</p>
Demand for healthy start products and breastfeeding for eligible non-participants in vouchers covering Healthy Start products	
Estimated demand	<p>(By eligible non-participants)</p> <p>Fresh fruit: statistically positively related to location, age in HH</p> <p>Fresh vegetables: statistically positively related to urban, age in HH</p> <p>Dairy: statistically positively related to location, income, age, white; statistically negatively related to urban</p>
Difference in participation rate by socio-demographic/economic group.	As above
Did demand for healthy start products change over time?	Na
Factors affecting demand	As above
Demand for non- healthy start products under vouchers covering Healthy Start products	
Estimated demand	<p>Eligible non-participants</p> <p>Rural group</p> <p>spent significantly less on beef, veal, fish, fresh veg, food away from home</p> <p>spent significantly more on cereal products, fats and oils, sugar and sweeteners</p> <p>Households in north east</p> <p>spent more on total food, food at home, bakery products, beef and veal, other red meats, poultry, dairy products, non-alcoholic beverages</p>

	<p>White HH Spent less on pork, poultry, and fish Spent more on bakery, dairy, non-alcoholic beverages, misc. prepared foods and food away from home</p> <p>HH with children Spent less on food ,</p> <p>HH with people >65 Spent more on food, less eating out of house,</p> <p>Overall, increased total per capita per week food bill from \$9.28 to \$10.14 (not total spending away from home decreased from \$1.82 to 1.57)</p>
Difference in participation rate by socio-demographic/economic group.	As above
Did demand for healthy start products change over time?	Na
Factors affecting demand	As above
Other evidence	
Evidence of wider impacts (outside healthy start products)	
BLOCK 4: CHALLENGES	
Author-stated limitations	
Author-stated strengths	Discontinuity allowed for.
Stated recommendations	<p>Participation in FSP increased purchases in all at home food purchases. On average each dollar distributed through the FSP increased food purchases by 22 cents.</p> <p>The FSP is 2.7 times more effective in expanding HH food purchases than cash transfers</p> <p>The elimination of the purchase requirement is likely to reduce the effectiveness of FSP at increasing food expenditure as more can be spent on non-food items</p>

BLOCK 1: BACKGROUND INFORMATION OF STUDY	
Reviewed by	JFR & MD
Title	Impact of the WIC Program on Food Expenditures
Author(s)	Arcia, Crouch and Kulka
Year of publication	1990
Type of publication (e.g. journal article)	Journal article
Origin of the study (country, state)	US
BLOCK 2: STUDY DESIGN	
Characteristics of the voucher scheme relevant to Healthy Start products	
Name of the voucher scheme	Special Supplemental Food Programme for Women, Infants and Children (WIC)
Description of the scheme	“The programme serves over 3.4 million persons annually...” (p218). WIC foods provide nutrients that are likely to be lacking in the diet of participants, particularly high quality protein, iron, calcium, vitamin A & C. The food prescription, known as a food package, contains food such as infant formula, milk or milk products, iron fortified cereal, juice, eggs and dried beans or peanut butter. It may vary in value between \$28-32 per month on average.
Study Characteristics	
Aim/objectives (primary, secondary)	Analyses the effect of program participation on expenditure and consumption patterns by the households involved. This was part of the National WIC Evaluation Study. The estimation specifically determined: <ul style="list-style-type: none"> a) The effect of WIC benefits on monthly food expenditures b) degree to which WIC benefits substituted for foods that would have been purchased anyway c) degree to which WIC benefits were shared by non-intended beneficiaries in the family
Inclusion/exclusion criteria (study definition of eligibility etc)	Nationally representative probability sample of pregnant women enrolled in WIC and non-WIC pregnant women.
Voucher scheme definition of eligibility	“Program participation is limited to pregnant women, post-partum women (up to 6 months post delivery), breast-feeding women (up to 12 months after delivery), infants (up to one year of age), and children (up to 5 years of age) from low-income families who are determined by a competent health professional to be nutritionally at risk. IN additional applicants must have a gross family income not exceeding 185% of the Office of Management and Budget nonfarm income poverty guidelines. Participation in other income assistance programs such as Food Stamp or School Lunch Programs does not affect eligibility” (p218)
Sample size	a) Recall study: 4,219 WIC and 785 non-WIC women b) Diary sample: 1,031 WIC and 551 non-WIC women
Age	Na
Gender	All female
Ethnicity	Recall Sample WIC = Whites 49%, Blacks 31%, Hispanics 18% Non-WIC = Whites 57%, Blacks 19% , Hispanics 21%

		Diary Sample WIC = Whites 51%, Blacks 21%, Hispanics 19% Non-WIC = Whites 57%, Blacks 18% , Hispanics 23%		
SES		Variables	Recall sample	
			WIC	Non-WIC
	Recall sample	Education 1-6yrs Education 7-8 yrs Education 9-11 yrs Education >12yrs Total Family Income per month Total family expenditure per month Grocery expenditure per month Meals away from home per month Food stamps per month No children (1-5) No adults	4% 8% 43% 34% \$582 \$198 \$161 \$12 \$67 0.63 1.98	2%, 6% 35% 43% \$ 739 \$ 214 \$166 \$22 \$35 0.55 1.89
	Diary sample	Education 1-6yrs Education 7-8 yrs Education 9-11 yrs Education >12yrs Total Family Income per diary week Total food expenditure per week Grocery expenditure per week Meals away from home per week Food stamps per week No children (1-5) No adults	3% 8% 43% 33% \$141 \$64 \$55 \$10 \$16 0.61 1.95	1% 5% 35% 43% \$175 \$63 \$50 \$14 \$8 0.54 1.87
BLOCK 3A: METHODS OF DATA ANALYSIS				
Time horizon of analysis		Data collected in 1983.		
Data sources		a) Recall method: During initial clinic enrolment for pregnancy, WIC and non-WIC women were asked to recall their monthly expenditures for food and beverages for the previous month (Time 1). Expenditure and income questions were repeated later in pregnancy (time 2) b) At 'time 2' a random sample were also asked to keep a detailed diary of food purchases for the next one-		

	<p>week period, using a ledger diary. An incentive was paid for taking part and the diary was collected and checked by interviewer at their home. The diary asked about intake and expenditure data by major food categories, major predictors or correlates of family food expenditures (family size, age-sex composition of HH, HH income).</p> <p>National WIC evaluation study</p>
Assumptions made	<p>a) Variables selected were significant in similar nutritional assistance programmes e.g. FSP</p> <p>b) Since exact value of WIC package is not available, substitution can be approximated by replacing the value WIC with the range of package values reported for the WIC package</p> <p>c) Study sample is a national representative sample of pregnant women enrolled in WIC</p>
Dependent variable (s)	<p>a) Recall method: Monthly total food expenditure at 'time 1' and 'time 2' (by stage of 2SLS); expenditure on groceries at 'time 1' and 'time 2'; meals away from home at 'time 1' and 'time 2'</p> <p>b) Diary method: Total weekly expenditure; several regressions of expenditure on different food groups (groceries, meals away from home, WIC type foods, meats, cereals & Bakery, vegetables, fresh foods, frozen foods, all foods)</p>
Independent and control variables	WIC or not, number children in HH, number of adults in HH, vector of family composition (including guests) and participation in assistance programmes, monthly HH income (wage and non wage), vector of socio-economic characteristics including ethnicity, participation in other assistance programmes, education level of WIC women
Analytical model:	<p>a) Recall method : 2 stage least squares</p> <p>b) Diary method: OLS</p>
Type of data set used:	<p>a) Recall method : Time series (but only 2 data points)</p> <p>b) Diary method: cross section</p>
How is the demand for food products and breastfeeding being measured?	Monthly (Recall sample) or weekly (diary sample) expenditure
BLOCK 3B: FINDINGS OF THE ANALYSIS	
Participation rates in voucher schemes covering Healthy Start products	
What was the participation rate?	Not studied
Difference in participation rate by socio-demographic/economic group.	Not studied
Did participation rate improve/ change over time?	Not studied
Factors affecting participation rates?	Not studied
Demand for healthy start products and breastfeeding under vouchers covering Healthy Start products	
Estimated demand	WIC increases spending on WIC type foods by \$2.54 per week generally and is associated with another \$2.54 increase in expenditure on WIC type foods per WIC child under 5.

	Food purchased for children was not easily substituted for foods consumed by HH adults
Difference in participation rate by socio-demographic/economic group.	Expenditure on WIC type foods was negatively associated with male HH living in house (-\$1.6/week) but positively related to number of adults living in house (each adult increases spending by \$1.14/week) and WIC children <5yrs (each WIC child increases spending by \$2.25/week)
Did demand for healthy start products change over time?	No evidence
Factors affecting demand	Nothing covered on vitamins or breastfeeding. Of direct relevance is results on groceries, vegetables and WIC type foods. a) Grocery expenditure (using recall method): expenditure is <i>positively associated</i> with family composition, number of guest days, participation in FSP, elementary education. Expenditure is <i>negatively associated</i> with black households b) Grocery expenditure (Diary data): positively related to number of adults, number of WIC children under 5 (each additional WIC child add \$5.82 to weekly grocery expenditure) and negatively related to a male HH living in house. Expenditure on vegetables (which is not targeted by WIC) is not affected by WIC. c) WIC type foods (diary data): WIC increases total spending on food, groceries, and WIC type foods.
Demand for healthy start products and breastfeeding for eligible non-participants in vouchers covering Healthy Start products [Not studied]	
Demand for non- healthy start products under vouchers covering Healthy Start products	
Estimated demand	WIC is associated with less spending on meals away from the home (-\$4.1/week)
Difference in participation rate by socio-demographic/economic group.	A male head being present was associated with reduced spending across all categories An additional adult present was associated with increased spending across all categories except frozen foods. Income was positively associated with purchase of meats, and fresh food
Did demand for healthy start products change over time?	Na
Factors affecting demand	
Other evidence	
Evidence of wider impacts (outside healthy start products)	-
BLOCK 4: CHALLENGES	
Author-stated limitations	1. Impact is focussed on pregnant women 2. Measurement and reporting errors associated with surveys reporting income and expenditure 3. Lack of information on quantity and composition of foods purchase with coupons (WIC women can buy various combinations of cheese/milk for example. It is not possible to determine composition of WIC package 4. Actual consumption of food/groceries may be over or underestimated

	<p>5. Correlations between diary and recall methods are about 0.7 and between these a measuring food expenditure only 0.49.</p> <p>Longitudinal analysis of diary data was not possible.</p>
Author-stated strengths	1. Recall and diary are efficient ways to collect data on food purchase from large samples.
Stated recommendations	<p>1. WIC mostly influences food composition rather than food expenditure</p> <p>2. WIC participants buy more WICT type products than non-WIC participants</p> <p>3. The impact of WIC on unintended participants appears negligible</p> <p>4. Children's participation in WIC has significant and positive impacts on expenditure and purchasing patterns</p> <p>5. WIC is associated with more home cooked meals</p>

BLOCK 1: BACKGROUND INFORMATION OF STUDY	
Reviewed by	JFR & Melina
Title	WIC and the Demand for Food by the Hispanic Community in the United States
Author(s)	Lanfranco et al.
Year of publication	2001
Type of publication (e.g. journal article)	Journal article
Origin of the study (country, state)	US
BLOCK 2: STUDY DESIGN	
Characteristics of the voucher scheme relevant to Healthy Start products	
Name of the voucher scheme	WIC and Food Stamps
Description of the scheme	<p>3 parts to WIC: 1) vouchers for specific high nutrition foods (iron-fortified infant cereal and formula, fruit juice, milk, cheese, eggs, peanut butter, beans) exchangeable at participating stores 2) limited nutrition and health counselling 3) referral to health providers. WIC vouchers valid for 1-3 months after which have to be re-issued. There were 7 different 'packages' of food (retrievable by voucher). In 1999 average package = about \$33/month.</p> <p>Food Stamp Programme: designed to provide low-income households supplemental purchasing power, enabling them to purchase more nutritious diets through regular market channels. 15 different food types are eligible. In 1996 average benefits per person = \$73.</p>
Study Characteristics	
Aim/objectives (primary, secondary)	<p>primary objective: to analyse the demand for food among a sample of the Hispanic population in the U.S. for nine main food groups: grains, vegetables, fruits, milk, meat, legumes, fats, sugar, and beverages, and three meat subgroups, beef, pork and chicken.</p> <p>Secondary objective: to determine the extent to which government income transfer programs, such as WIC influence household's demand for targeted food groups.</p>
Inclusion/exclusion criteria (study definition of eligibility etc)	Only HH of Hispanic origin
Voucher scheme definition of eligibility	<p>WIC: low-income pregnant, breast feeding and post-partum women, infants and children up to the age of 5. Mother & new born may get 2 'vouchers', children 1-5 have 1 voucher</p> <p>FSP: A household's food stamp allotment is based on three factors: food costs, income and family size.</p>
Sample size	643 households from 727 selected provided sufficient data.
Age	Ave age HH head =41yrs
Gender	62% of households were headed by men
Ethnicity	Mexican (44%), Puerto Rican (11%), Cuban (3%), other Hispanic (43%)
SES	Ave HH size = 4 (range 1-8)

	HH with no children (51%) HH with 1x child 1-5 (31%) HH with 2x child 1-5 (13%) HH with ≥3x child 1-5 (4%) 54% employed 30-36% unemployed (depending on year of sample)
BLOCK 3A: METHODS OF DATA ANALYSIS	
Time horizon of analysis	1994-1996
Data sources	Selection sampled from USDA 1994-96 Continuing Survey of Food Intakes by Individuals (CSFII 94-96). It includes information about 8,067 U.S. households nationwide, surveyed between 1994 and 1996.
Assumptions made	
Dependent variable (s)	Quantity of food consumed, in grams per week, for each of the food groups and 3 subgroups.
Independent and control variables	<ul style="list-style-type: none"> • Household income (annual, before tax from previous calendar year) • Household size (using 'Amsterdam scale' based on nutritional studies) • Ethnicity (Mexican, Puerto Rican, Cuban, other Hispanic) • Age HH head • Gender of reference person • Geographic regions (northeast, Midwest, south, west) • Urbanisation status (inside / outside) • Education (none, elementary, high, college, graduate) • Tenure status of HH • Any HH members getting Food Stamps • Any HH member getting WIC? • Year of HH survey (1994, 95, 96)
Analytical model:	<p>To cope with quantity of zero responses, particularly for some food categories, 3 alternative models used</p> <ol style="list-style-type: none"> 2 step Heckman Tobit Type 11 (0/1 demanded or not) OLS just of positive values <p>NB. b & c can be viewed as an alternative 2 part model to Heckman model.</p> <p>Semi-log model (i.e. logs just for weekly income and HHsize)</p> <p>Testing of model using: Lagrangian multiplier test; general White test (used heteroscedastic consistent White estimator); likelihood ratio test as an open extension of Goldfeld-Quandt test.</p> <p>Elasticities: Income and HH size elasticities calculated from regression – estimated as the ratio between the</p>

	corresponding estimated coefficients for log B1 income (or log B2 HHsize) and sample mean of the quantity demanded. Also confidence intervals presented at 90% significance using the Delta method using Taylor-expansion series approximations.						
Type of data set used:	Cross section spread over 3 years						
How is the demand for food products and breastfeeding being measured?	Quantity of food consumed, in grams per week, for each of the food groups and 3 subgroups						
BLOCK 3B: FINDINGS OF THE ANALYSIS							
Participation rates in voucher schemes covering Healthy Start products							
What was the participation rate?	WIC = 25% of eligible HH (using income criteria) received WIC FSP = 42% of eligible HH in terms of income received FSP (p94)						
Difference in participation rate by socio-demographic/economic group.	participation changes by income category (descriptive statistics presented but not coming out of the analysis)						
Did participation rate improve/ change over time?	Na						
Factors affecting participation rates?	children in the family (discussed in the text only- no concrete evidence on it)						
Demand for healthy start products and breastfeeding under vouchers covering Healthy Start products							
Estimated demand		Income elasticity of demand (90% confidence interval)			HH size elasticity (90% confidence interval)		
		HP	TP	SS	HP	TP	SS
	Vegetables	0.7696 (- .7607, 2.2998)	.1185 (-.1070, .3440)	.1343 (- .1151, .3836)	0.9188 (- .7444, 2.5818)	.4192 (- .2959, 1.1344)	.3799 (-.2704, 1.3010)
	Fruits	0.0580 (- .2334, .3494)	-.0482 (-.1945, .0982)	.0335 (- .1009, .1680)	.7070 (- .8113, 2.225)	.3653 (- .3300, 1.0605)	.5357 (-.4689, .5403)

)	
	Milk	0.2304 (- .1876, .6484	-.0286 (- .1354, .0783)	-.0027 (- .1003, 0.0949)	.8873 (- .5421, 2.3168)	.6383 (- .3872, 1.6639)	.6308 (-.3822, 1.6437)
	HP: 2 stage Heckman TP: Tobit SS: Sample selection (OLS on +ve values)						
	<p>Note</p> <p>a) the width of the confidence intervals: some cross zero; quite wide – elasticities are not precise estimates and make inferences about consumer behaviour</p> <p>b) Different estimates from different methods’ HP results much more elastic.</p> <p>c) Vegetables more responsive to changes in income, although some negative CI</p> <p>d) Fruit and milk not very responsive to changes in income</p> <p>e) Demand more responsive to changes in HH size.</p>						
Difference in participation rate by socio-demographic/economic group.	N/A						
Did demand for healthy start products change over time?	Not assessed						
Factors affecting demand	Vegetables: strongly & positively associated with one location; strongly & negatively associated with being of Puerto Rican over other Hispanics Fruits: strongly & positively associated with having a HH member on WIC Milk: strongly & positively associated with having a HH member on WIC, and being in central city area; strongly & negatively associated with age of HH head.						
Demand for healthy start products and breastfeeding for eligible non-participants in vouchers covering Healthy Start products							
Estimated demand	Not presented, although it would be possible to compare estimates from populations of similar characteristics with original data and estimations to assess this.						
Difference in participation rate by socio-demographic/economic group.	Na						
Did demand for healthy start products change over time?	Na						
Factors affecting demand	Na						
Demand for non- healthy start products under vouchers covering Healthy Start products							
Estimated demand	<ul style="list-style-type: none">Most food categories were inelastic (<0.5), except grains, vegetables & fats.						

	<ul style="list-style-type: none"> • Demand for beef (E=1.59), pork (E=1.35) and chicken (E=0.69)
Difference in participation rate by socio-demographic/economic group.	<ul style="list-style-type: none"> • Education: most strongly & positively related to demand for fats, sugars, drinks education; moderate to negative relation to fruits, meats • Location in central city: strong positive effect in consumption of grains, fruits, milk, pork & chicken. • North location consumed more grains, veg, fats, beef and less legumes & pork. • HH with Puerto Rican origin consumed less veg, milk, sugar and moderately more pork & chicken than other Hispanic groups. Cubans eat more veg, legumes and chicken and less fats and pork. • Age of HH head positively associated with consumption of grains, beverages, and meat and negatively with milk and fruits.
Did demand for healthy start products change over time?	Na
Factors affecting demand	same as above
Other evidence	
Evidence of wider impacts	-
BLOCK 4: CHALLENGES	
Author-stated limitation	<ul style="list-style-type: none"> • Results of this study are not conclusive about food voucher programs • Limiting participation of sample since only 18.8% had children
Author-stated strengths	<ul style="list-style-type: none"> • Results consistent with other finding • Alternative methods of estimating elasticities, along with confidence interval
Stated recommendations	<ul style="list-style-type: none"> • Food processors and retailers should pay attention to some socio economics and demographic characteristics when marketing to Hispanics • Demand for broad food groups is relatively inelastic with respect to income and moderately unitary elastic with respect to HH size. • Education of HH head and geographic location are also important determinants in demand for food. • Those participating in WIC seem to consume more fruits, milk, ok and less total fats beverages & chicken that those outside WIC. These a foods WIC targets • “When the share of income spent on food ranges from 41 to 71 percent in Hispanic households with income less than \$15,000, programs which improve food consumption and the nutritional status of the target groups should continue to receive political support <i>ceteris paribus</i>”

BLOCK 1: BACKGROUND INFORMATION OF STUDY	
Reviewed by	JFR & MD
Title	Food Stamp Program and Consumption Choices
Author(s)	Kaushal & Gao
Year of publication	2010
Type of publication (e.g. journal article)	Unclear? A working paper?
Origin of the study (country, state)	US
BLOCK 2: STUDY DESIGN	
Characteristics of the voucher scheme relevant to Healthy Start products	
Name of the voucher scheme	FSP
Description of the scheme	“the primary objective of the FSP was to mitigate food insecurity and meet nutritional deficiencies in low-income families. Over the years, however, the nature of nutritional risk in low-income families has changed from food insufficiency to obesity, leading to a policy debate on whether the FSP has served its purpose and whether it needs to be redesigned to improve quality of food consumed in low-income families”
Study Characteristics	
Aim/objectives (primary, secondary)	<p>Primary aim:</p> <p>“We investigate whether these changes in the FSP caseload, resulting from social policy changes, had any influence on food expenditures in low-income families. We also examine how changes in policies that affected incentives for participation in the FSP, i.e. introduction of EBT cards, simplified certification, and welfare reform, affected food expenditures in low-income families”</p> <p>Secondary aim:</p> <p>Examine food spending patterns of FSP eligible non-participant families by low-educated single mothers</p>
Inclusion/exclusion criteria (study definition of eligibility etc)	<p>restricted to</p> <p>a) families where the mother is aged 18-54 years.</p> <p>b) only families with children</p> <p>c) nine main categories of food expenditures: food at home, food away from home, cereals and bakery products, meat, dairy products, fruits and vegetables, non-alcoholic beverages and alcoholic beverages and miscellaneous expenses on food</p> <p>d) target group of this analysis is families headed by single mothers with a high-school or lower education.....(this is compared with).... two parent families with children, in which mothers have a high-school degree or lower education as the group of comparison.</p>
Voucher scheme definition of	Footnote 5...: “A household is certified to receive food stamps for a certain period depending on state policy and

eligibility	household structure. Prior to the 2002 FSRIA, the household was expected to report any changes in income and family structure that may affect eligibility and benefits even during the certification period. Under the new simplified reporting system the household is expected to report changes during the certification period only if their incomes rise above 130 percent of the federal poverty line”
Sample size	7500 family units in a household sampled each year in CES
Age	18-54 years old (mothers)
Gender	Analysis focussed on single mother and two parent families
Ethnicity	No details provided
SES	No details provided
BLOCK 3A: METHODS OF DATA ANALYSIS	
Time horizon of analysis	1994-2004
Data sources	<p>The weekly Diary Survey (DS) (which are completed for 2 weeks) from the Consumer Expenditure Survey</p> <p>The food stamp caseload data = various issues of the ‘Background Material and Data on the Programs within the Jurisdiction of the Committee on Ways & Means’ of the U.S. House of Representatives (the Green book), and the Food and Nutrition Service of the U.S. Department of Agriculture.</p> <p>The data on unemployment rate come from the U.S. Bureau of Labor Statistics</p> <p>Real per capita income from the U.S. Bureau of Economic Analysis.</p> <p>data on welfare policies are drawn from the State Documentation Project of the Center on Budget and Policy Priorities (www.cbpp.org) and merged with the CES data, by state, month and year.</p> <p>We code a state to have simplified reporting in year t if it implemented simplified reporting with bi-annual certification. These data are taken from various years of Food Stamp Program State Options Reports, and the Food and Nutrition Service of the U.S. Department of Agriculture.</p> <p>Data on whether a state implemented the Electronic Benefit Transfer (EBT) card system are taken from Danielson and Klerman (2006). These data are merged with the CES data, by state, month and year.</p> <p>March Current Population Surveys and examine trends in FSP participation of the two groups during 1979-1990</p>
Assumptions made	2004 dollars

	<p>“ consumer units without state identifiers (15% of sample) and are dropped from the analysis”</p> <p>“per capita expenditure per week on food by family i living in state j in year t, and is defined as a function of the per capita food stamp caseload jt FS ; time-varying state characteristics (Z_{jt}), namely unemployment rate, log per capita income; individual characteristics (X_{ijt}) namely age (dummy variables for six age groups: 18-23, 24-29,30-35, 36- 41,42-47 and 48-54), race and ethnicity (Hispanic, non-Hispanic white, non-Hispanic black, Asian and others), family income, whether the family lives in an urban area, family size, number of children under 18, and number of persons in the family aged 65 or above, state effects, month of the year effects and year effects. The coefficient λ estimates the association between the food stamp caseload and food expenditure. All estimates compute Huber/White/sandwich standard errors. Since most consumer units appear twice in the data, the standard errors are estimated by clustering around the consumer unit”.....” we estimate this equation after including a state-specific cubic time trend to control for business cycle effects that may be correlated with the food stamp caseload”</p> <p>“to control for unobserved time-varying state effects correlated with the food stamp caseload, we can employ a comparison group research design that involves selecting two groups (a target group and a comparison group), similar in all aspects, except for their dependence on the FSP” and then estimate the equation from previous paragraph for both groups..... To obtain the effect of changes in the food stamp caseload triggered by social policy on the target group, we can subtract the estimated value of the association between the food stamp caseload and food expenditure for the comparison group from the corresponding estimate for the target group. The identifying assumption of this research design is that time-varying state effects correlated with the food stamp caseload affected the target and comparison groups in the same manner”</p> <p>We study the effect of four policy variables: TANF, AFDC waiver, EBT and simplified reporting (SR). All four policies are introduced in the model as dummy variables.</p> <p>“The identifying assumption in our research design is that time-varying factors correlated with the food stamp caseload (or social policies) affected food expenditures of the target and comparison groups in the same manner. One way to test the validity of this assumption is to examine trends in food expenditures of the target and comparison groups during a period of relatively no change in social policies”</p>
Dependent variable (s)	per capita real weekly expenditure on food
Independent and control variables	<p>“Each regression controls for mothers’ age, race/ethnicity, whether she lives in an urban area, family size, family income (We used nine dummy variables as indicators for the following annual income (before tax and transfers) categories: < \$5,000; \$5,000 to \$9,999; \$10,000 to \$14,999; \$15,000 to \$19,999; \$20,000 to \$29,999; \$30,000 to \$39,999; \$40,000 to \$49,999; \$50,000 to \$69,999 and \$70,000 and over. We also repeated the analysis in which</p>

	<p>we included controls for income net of transfers and taxes (continuous variable) but exclusive of food stamp Benefits), number of children under 18, and number of persons in the family aged 65 or above, state monthly unemployment rate and per capita income, state, year, and month fixed effects”</p> <p>Also - 9-10 state identifiers</p>
Analytical model:	Ran a series of separate least squares regressions for female headed versus 2 parent families, on or off food vouchers for each type of food considered
Type of data set used:	Comparative groups as multiple cross sections over time
How is the demand for food products and breastfeeding being measured?	Weekly expenditure (nothing on breastfeeding)
BLOCK 3B: FINDINGS OF THE ANALYSIS	
Participation rates in voucher schemes covering Healthy Start products	
What was the participation rate?	<p>24.41 in sample of single mother HH received food stamps in previous year</p> <p>26.38 in sample of two parent family HH received food stamps in previous year</p>
Difference in participation rate by socio-demographic/economic group.	n/a
Did participation rate improve/change over time?	<p>“During 1994-2004, the period covered by this study, the average per capita food stamp caseload was eight percent or 22.1 million participants. A one percentage point increase in per capita caseload is equivalent to expanding the program by adding 2.8 million more participants or 12.5 percent increase in the food stamp caseload. Therefore, the above estimates suggest that a 12.5 percent increase in the FSP would raise food expenditure in low-educated single mother families by 3.3 percent (based on the mean per capita weekly food expenditure of \$28.56 incurred by families headed by low-educated single mothers during the period of this study).”</p> <p>Re their Table 3:</p> <p>We regress the state per capita food stamp caseload on four policy variables¹⁹ (EBT, SR, the AFDC waivers and TANF) and state and year fixed effects. Found</p> <p>“EBT was associated with a 0.3 to 0.4 percentage points (or 4 to 5 percent, based on a per capita food stamp caseload of eight percent) increase in the food stamp caseload; SR was associated with a statistically insignificant 0.2 percentage points (2.5 percent) increase in the food stamp caseload; the AFDC waivers were associated with a 0.3 to 0.5 percent (four to six percent) decline in the caseload and TANF was associated with a one percentage points (12.5 percent) decline in the food stamp caseload.”</p>

	<p>And evaluated related impact on type of food expenditure... to find“changes in the FSP and welfare reform help explain a tenth to a third of the change in the food stamp caseload. But we do not find any consistent association between these policies and food expenditures. Most models show that none of the four policies studied in this paper had any statistically significant effect on total food expenditure”</p>
Factors affecting participation rates?	<p>“We find that state and federal welfare reforms during the 1990s lowered the food stamp caseload by approximately 18 percent and the introduction of the Electronic Benefit Transfer cards and simplified reporting procedures for recertification of food stamps increased participation by about 7%”</p>
Demand for healthy start products and breastfeeding under vouchers covering Healthy Start products	
Estimated demand	<p>“Single mother families who received food stamps spent 16 percent less on average on fruits and vegetables as compared to those not on food stamps, The story is more or less similar for two parent families; those receiving food stamps spent less on food than those not on food stamps.”</p> <p>“A 12.5% increase in the size of the program would mean a maximum increase in benefit amount of \$3.6 per person per week, an increase too small to have much effect on an unconstrained consumer. 18 In addition, we may not have the power to detect such small sized effect. Our statistically insignificant estimate implies a marginal propensity to consume (MPC) of around 0.26 ($=0.94 \div 3.6$).”</p> <p>“the analysis in column (2) suggests that a 12.5 percent increase in food stamp caseload is associated with a \$1.22 reduction in expenditure on fruits and vegetables. This is a worrisome result as it suggests that the FSP adversely affects food quality. To further examine the association between food stamp participation and quality of food consumption, we estimated the association between the caseload and expenditure on fruits and vegetables, excluding potatoes. The estimated coefficient turned positive and weakly significant (coefficient =1.12; s.e.= 0.51). This result suggests that the food stamp caseload is not associated with a decline in food quality (i.e. decline in consumption of fruits and vegetables). Since expenditure on potatoes is a tiny proportion (about 0.6 percent) of the total expenditure on food, we consider it prudent not to read too much into the positive and statistically significant association between the caseload and expenditure on fruits and vegetables (excluding potatoes).”</p> <p>Summary...</p> <p>“expansions in the food stamp program, measured by increases in the food stamp caseload, do not appear to have any statistically significant effect on total expenditure on food and expenditure on most food items in low educated single mother headed families. We also find some weak evidence that the caseload increase is associated with an increase in expenditure on food away from home in low-educated single mother families. It is possible that the expansions in the FSP that we measure have a rather small an impact on family incomes and we don’t have the</p>

	power in our data to measure such small sized effect.”
Difference in participation rate by socio-demographic/economic group.	food stamp caseload does not have any statistically significant effect on total food expenditure or on expenditures on major food items in single mother headed families. All estimates are small and statistically insignificant
Did demand for healthy start products change over time?	Na
Factors affecting demand	Food stamp has a significant effect on fruit and vegetable expenditure. 12% increase in Food Stamps caseload is associated with a \$1.22 reduction in expenditure on fruits and vegetables. This result suggests that FSP adversely affects food quality
Demand for healthy start products and breastfeeding for eligible non-participants in vouchers covering Healthy Start products	
Estimated demand	“Single mother families who received food stamps spent 16 percent less on average on fruits and vegetables as compared to those not on food stamps, The story is more or less similar for two parent families; those receiving food stamps spent less on food than those not on food stamps.”
Difference in participation rate by socio-demographic/economic group.	Na
Did demand for healthy start products change over time?	Na
Factors affecting demand	Na
Demand for non- healthy start products under vouchers covering Healthy Start products	
Estimated demand	“changes in the food stamp caseload triggered by social policy changes during the mid-1990s (e.g. welfare reforms) did not have any statistically significant association with per capita expenditure on food in families headed by low-educated single mothers” “Single mother families who received food stamps spent 16percent less on average on fruits and vegetables as compared to those not on food stamps, 18 percent less on cereals, five percent less on meat, and two percent less on dairy products. Those on food stamps also spent a smaller proportion on beverages, alcoholic (one-third less) as well as non-alcoholic (eight percent less). ¹⁵ The story is more or less similar for two parent families; those receiving food stamps spent less on food than those not on food stamps.”
Difference in participation rate by socio-demographic/economic group.	Na
Did demand for healthy start products change over time?	Na

Factors affecting demand	Na
Other evidence	
Evidence of wider impacts (outside healthy start products)	none
BLOCK 4: CHALLENGES	
Author-stated limitations	<p>Hanratty (2006) found that Simplified Registration helped explain a much larger proportion of the increase in FSP participation since 2001 for two parent families than it did for single mother families. This finding questions the assumption that the experience of two parent families is an appropriate counterfactual for testing the effect of EBT and SR on single mother families.</p> <p>limitations of the comparison group research methodology: (Aware of but unstated)</p> <p>low MPC for fruit and veg may mean sample size was too small to measure small effects</p>
Author-stated strengths	<p>Inclusion of state-specific time-trend variables indicated that simple models overestimate impact of FSP on type of food expenditure.</p> <p>Our results thus support findings from some of the earlier analysis that the Food Stamp Program does not have any statistically significant effect on food consumption (Moffitt, 1989)</p>
Stated recommendations	<p>Our analysis of the effect of social policy changes on expenditures on specific food items suggest that the AFDC waivers were associated with a decline in expenditure on dairy products and TANF was associated with a decline in expenditure of non-alcoholic beverages and some weak evidence that simplified reporting discouraged expenditure of alcoholic beverages</p>

Appendix 13: Results on products not supported by Healthy Start

Paper	Non-HS products included for study	Significance in regression
Lafranco et al. 2001	Grains, Meat, Leg, Fats, Sugar, Beverages, Beef, Pork, Chicken	<p>No magnitude of effect size reported</p> <p>FS- Pork and chicken (negative and moderate)</p> <p>WIC: meat (negative and moderate); Fats (negative and strong); beverages (negative and moderate); pork (positive and moderate); chicken (negative and moderate)</p>
Chavas & Yeung, 1982	cereals and bakery, beef and veal, pork, other meat, poultry, fish and shell fish, eggs, dairy, sugar and sweets, fat and oil, non-alcoholic beverages, prepared food, alcoholic beverages	<p>Interaction terms with bonus significant at 10% level. No magnitude of effect size reported</p> <p>cereals and bakery (income*bonus +; bonus*race +), beef and veal (income*bonus +; bonus*race +; family size*bonus -), pork (income*bonus +; family size*bonus -; bonus*location +), other meat (bonus*location +), eggs (income*bonus +; bonus*location +), dairy (bonus*race +; bonus*education -), sugar and sweets (Bonus +), fat and oil (Income*bonus +; bonus*location +), non-alcoholic beverages (bonus*race +; bonus*location +)</p> <p>Interpretation: Only 'sugar and sweets' had independent and positive effect of bonus.</p> <p>The food items not included above had no significant difference.</p>
Reed & Levedahl, 2010	Beef, pork, poultry, dairy, processed fruits and vegetables, other food at home; non-food	<p>Elasticity – all had significant t-stat: Beef (.026), pork (.021), poultry (.019), dairy (.020), processed fruits and vegetables (.021), other food at home (.017); non-food (.004)</p> <p>Interpretation: Food stamps had small but statistically significant effect on market demand (e.g. 10% increase in the ratio of participating to total households would result in 2.6% increase in the consumption of beef).</p>
Huang et al. 1981	Meat, dairy, cereal and bakery	<p>Beta coefficients with insignificant t-values: Meat (-.000594), dairy (.000294), cereal and bakery (-.000765)</p> <p>Interpretation: Bonus had insignificant effect on the expenditure on meat, dairy, cereal and bakery products. Although insignificant, dairy products were positively correlated with bonus and mean and</p>

Paper	Non-HS products included for study	Significance in regression
		cereal/bakery negatively correlated with Bonus.
Davis & Neenan 1979	Meat and protein, dairy, bread and grain	<p>Marginal propensity to spend Bonus</p> <ul style="list-style-type: none"> – Meat: .335 to .328 – Dairy: -.065 to +.053 – Bread and grain: .208 to .229 <p>Interpretation: Approximately \$0.33 of each additional Bonus dollar was spent on meat and between \$0.21 – 0.23 on bread and grain. The effect on dairy was mixed. The effect on meat and dairy was insignificant whereas that on bread and cereal was significant.</p>
Binkley & Eales 2002	338 grocery products e.g. canned meat, dry milk, cooking oil, lunch meat, etc.	<p>t-stats of each food category regression (only t-stat >2 reported below)</p> <p>Bacon (2.07); frozen poultry dishes (2.12); Yogurt (2.25); Frozen meat dishes / steaks (2.62); brewed coffee (2.79)</p> <p>Interpretation: Average per capita FS benefits have significant positive impact on market share of food items.</p>
Arcia et al. 1990	Meats, Cereals and bakery, fresh foods, frozen foods; Meals away from home, Grocery expenditure, Total expenditure	<p>OLS regression coefficients (\$/week): *5%; **1% and ***<1% significance level</p> <p>Meats -1.25, , Cereals and bakery -0.77, fresh foods -1.24, frozen foods -0.28, meals away from home -4.10***, grocery expenditure 0.75, total expenditure -3.34</p> <p>Interpretation: WIC households spend \$4.10 less on meals away from home than non-WIC households. The effect of WIC on all other items was insignificant.</p>
Salathe, 1980	Cereals, Bakery, beef and veal, pork, other red meats, poultry, fish eggs, dairy, processed fruits, processed vegetables, sugar and other sweeteners, fats and oils, non-alcoholic beverages,	<p>% increase in weekly per capita expenditure due to Food Stamp participation (significant impact only)</p> <p>Cereals 41.9%, Bakery 9.5%, beef and veal 14.7%, pork 32.5%, poultry 21.6%, dairy 21.8%, processed vegetables 34.6%, fats and oils 16.7%, non-alcoholic beverages 30.2%, and Food away from home -</p>

Paper	Non-HS products included for study	Significance in regression
	miscellaneous prepared food; Food away from home, Food at home, Total food	36.3%. Interpretation: Food Stamp participation led to a decrease of 36.3% in food away from home spending (per capita per week) while it led to an increase of 41.9% on cereal expenditure (per capita per week)
Kaushal & Gao 2010	Cereals and bakery products, meat, dairy, non-alcoholic beverages, alcoholic beverages; Food at home, Other food at home	Regression coefficients of per capita FS caseload on per capita weekly expenditure standardised at a 12.5% increase in FS caseload. Single mother: Food away from home 2.716 (sig at 5%) Two-parent families: Dairy products -0.567 (1% sig); non-alcoholic beverages -0.462 (5% sig); Other food at home -0.903 (5% significance) <i>[All other items: insignificant]</i> . Interpretation: A 12.5% increase in FS caseload is associated with a \$2.7 increase per capita weekly expenditure on food away from home in single mother families. Associated with a \$0.57 decrease in dairy products in 2-parent families.

Appendix 14: Topic guide for practitioner focus groups

To be used flexibly depending on how discussion evolves

1. Preliminary information

- a. Welcome and introduce facilitators
- b. Recap aims of research
- c. Confidentiality and anonymity
- d. How discussion will be conducted and recorded, and approx. duration

2. Getting participants talking

- a. Each participant - name, role / involvement with Healthy Start

3. General questions

- a. What do you think of the Healthy Start scheme? Prompts - what are the benefits of Healthy Start? What are the drawbacks of Healthy Start? Does Healthy Start make a difference to families in your locality?
- b. What is the role of practitioners in Healthy Start?
- c. How could the Healthy Start scheme be improved?

4. Specific issues

- a. Eligibility – how do you identify eligible families, does Healthy Start help you identify vulnerable families earlier, does this help you to provide appropriate advice and support, what are the barriers to registering for the programme, how could it be made easier for eligible people to get on to the scheme, is there sufficient accessible information for families and health professionals, how could uptake in your area be improved?
- b. Application process – are there any difficulties with the application process, is there any support for families to apply for Healthy Start?
- c. Vouchers – where can families use the vouchers in your locality, are there any problems with use of the vouchers, are they exchanged for allowable products, what do you think of the value of the vouchers?
- d. Vitamins – what do you think of Healthy Start vitamins, do they improve health, how do women obtain Healthy Start vitamins in your localities, how do you promote uptake of vitamins, are there any barriers to uptake of vitamins?

5. Rounding up questions

- a. Are you aware of any strategies for improving the uptake of Healthy Start - locally or nationally, how would these work in your area?
- b. What are the important questions we should ask - other practitioners in the electronic survey, -women in the workshops
- c. Is there anything which you think is important about Healthy Start which we haven't asked

6. Completion of discussion

- a. Thank participants for helpful participation – how to contact if think of anything else
- b. Next stages of research
- c. When and how findings available

Appendix 15: National electronic consultation questionnaire

Healthy Start

Introduction

You have received this questionnaire as someone who is involved in the commissioning, management, monitoring, and/or implementation of the Healthy Start scheme in England, or as a member of an organisation that represents and/or advocates for women and families who may be recipients of Healthy Start. We would be really pleased if you would take some time to complete this questionnaire. Your responses will provide important information for our evaluation and will inform recommendations for improving the scheme.

This questionnaire gives you an opportunity to share your thoughts and experiences on all aspects of the Healthy Start scheme including:

- Operational issues regarding Healthy Start
- Barriers to Healthy Start working well
- Strategies to improve Healthy Start
- Examples of good practice

The questionnaire contains nine short sections as follows:

1. Providing information about Healthy Start
2. Opportunity for providing health and lifestyle information
3. Eligibility
4. Applying for Healthy Start
5. Using Healthy Start vouchers
6. Healthy Start vitamins
7. Information and training for practitioners
8. General questions
9. Questions about you and your role

We recognise that not all questions will be applicable to all respondents. Where this is the case, please indicate 'not applicable'(N/A) and move on to the next question.

The information you provide is confidential. The data will be held at the Mother and Infant Research Unit at the University of York. The findings from this evaluation will be published as a report for the Department of Health, in academic and professional papers and presentations, and in women's magazines. Individuals will not be identified in any of these.

If you would like to receive a short summary of the findings, please provide an e-mail address at the end of the questionnaire. This address will not be linked to your questionnaire responses.

THANK YOU FOR YOUR PARTICIPATION

Section 1: Providing women with information about Healthy Start**1. Providing women with information about Healthy Start**

	Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree	Don't know	N/A
I have adequate time to discuss Healthy Start with women.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Local women who may be eligible are mostly already aware of Healthy Start.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

2. What are the barriers to providing women with information about Healthy Start?**3. Are you aware of any examples of good practice for informing women about Healthy Start? Please provide details.****4. Do you have any other suggestions for ways of informing women about Healthy Start?**

5. Providing appropriate health and lifestyle information

	Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree	Don't know	N/A
As a result of Healthy Start I am able to identify vulnerable women earlier in their pregnancies than I otherwise would.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
As a result of Healthy Start I am able to provide advice and support for vulnerable women earlier in their pregnancies than I otherwise would.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

6. What are the barriers to providing appropriate health and lifestyle information for women who are eligible for Healthy Start?

7. Are you aware of any examples of good practice for providing appropriate health and lifestyle information for women who are eligible for Healthy Start? Please provide details

Healthy Start

8. Do you have any other suggestions for ways of providing appropriate health and lifestyle information for women who are eligible for Healthy Start?



Section 3: Eligibility for Healthy Start

9. Eligibility for Healthy Start

	Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree	Don't know	N/A
Local women understand whether they are eligible for Healthy Start	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I have no difficulty identifying women who are eligible for Healthy Start	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

10. Do you think the eligibility criteria for Healthy Start vouchers are about right?

- ☐ Yes, they are about right
- ☐ No, more women should be eligible
- ☐ No, fewer women should be eligible
- ☐ Don't know
- ☐ Not applicable
- ☐ Other (please specify)

11. What are the barriers to identifying women who are eligible for Healthy Start?

Healthy Start

12. Are you aware of any examples of good practice for identifying women who are eligible for Healthy Start? Please provide details



13. Do you have any other suggestions for ways of identifying women who are eligible for Healthy Start?



Section 4: Applying for Healthy Start

14. Applying for Healthy Start

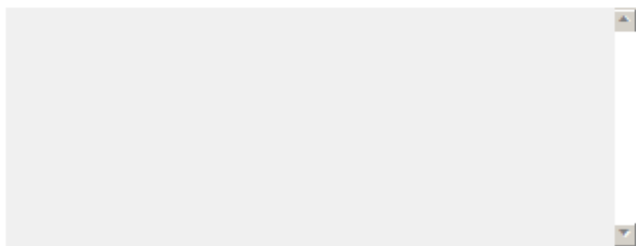
	Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree	Don't know	N/A
There is support available to help local women to apply for Healthy Start.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Local women who are not fluent in English can easily get help to apply for Healthy Start.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Local women who are unable to read can easily get help to apply for Healthy Start.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

15. What are the barriers to women applying for Healthy Start?

16. Are you aware of any examples of good practice for helping women to apply for Healthy Start? Please provide details

Healthy Start

17. Do you have any other suggestions for ways of helping women to apply for Healthy Start?



Section 5: Using Healthy Start vouchers

18. Using Healthy Start vouchers for milk/formula milk/fresh fruit and vegetables/frozen vegetables

	Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree	Don't know	N/A
Local women are able to use their Healthy Start vouchers at a wide range of retailers.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Some local retailers will allow women to exchange Healthy Start vouchers for non-allowable products.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

19. I think the value of Healthy Start vouchers* is about right.

* Healthy Start vouchers are worth:

£3.10 a week for pregnant women

£6.20 a week for each baby aged under one

£3.10 a week for each child aged over one and under four

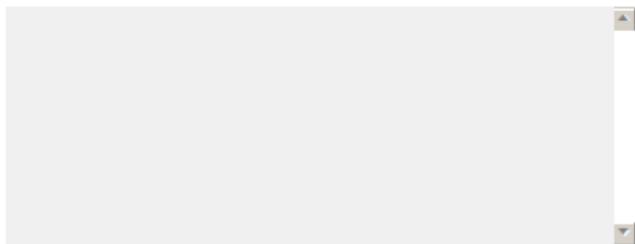
- ☐ Yes, it is about right
- ☐ No, it should be less
- ☐ No, it should be more

Other (please specify)

20. What are the barriers to women using Healthy Start vouchers in your area?

Healthy Start

21. Are you aware of any examples of good practice for making it easier for women to use their Healthy Start vouchers? Please provide details

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22. Do you have any other suggestions for ways of making it easier for women to use their Healthy Start vouchers?

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Section 6: Healthy Start vitamins

23. Healthy Start vitamins

	Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree	Don't know	N/A
Vitamin supplements are important for the health of pregnant women and children under 4 years old who are eligible for Healthy Start.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Local women understand the importance of vitamins for themselves.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Local women understand the importance of vitamins for their children.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Local women know where they can obtain Healthy Start vitamins for themselves and their children.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I know where to advise women to get Healthy Start vitamins in my area.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Healthy Start vitamins are actively promoted to local women on or applying for Healthy Start.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I believe that all pregnant women should receive free Healthy Start vitamins regardless of whether they are eligible for Healthy Start vouchers.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I believe that all children under 4 years old should receive free Healthy Start vitamins regardless of whether they are eligible for Healthy Start vouchers.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

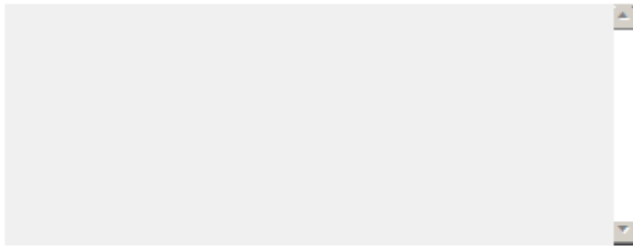
24. What are the barriers in your area to women and children obtaining Healthy Start vitamins?

Healthy Start

25. Are you aware of any examples of good practice for promoting Healthy Start vitamins? Please provide details

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26. Do you have any other suggestions for ways of promoting uptake of Healthy Start vitamins?

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Section 7: Information and training for practitioners

27. Information for practitioners

	Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree	Don't know	N/A
I know as much as I need to know about the Healthy Start scheme.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I am able to get the information I need from the Healthy Start website	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I am able to access information about the uptake of Healthy Start vouchers in my area.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I am able to access information about the uptake of Healthy Start vitamins in my area.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

28. Have you had training to perform your role in regard to Healthy Start?

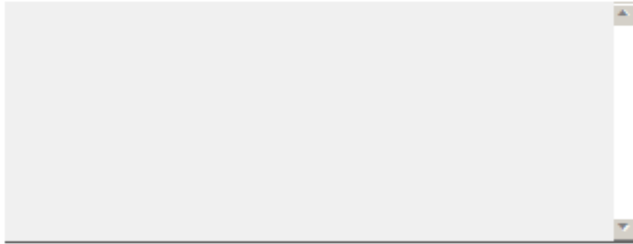
- ☐ Yes I have had training
- ☐ Yes I have had training and I would like further training
- ☐ No I have not had training
- ☐ No I have not had training and I would like training
- ☐ Other (please specify)

29. Have you undertaken the Healthy Start e-learning CPD course (found on the Healthy Start website)?

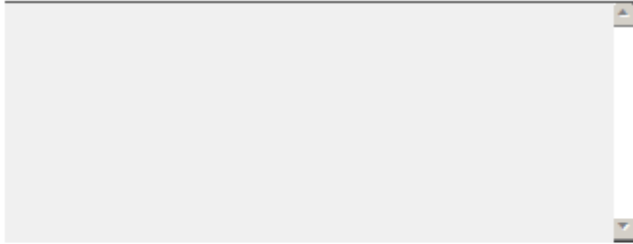
- ☐ Yes
- ☐ No, I am aware of the course but have not undertaken it
- ☐ No, I was unaware of the e-learning course
- ☐ Other (please specify)

Healthy Start

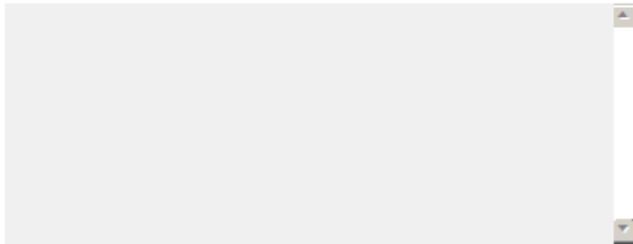
30. What are the barriers to practitioners obtaining information and training about Healthy Start in your area?

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31. Are you aware of any examples of good practice for practitioners to obtain information and training about Healthy Start in your area? Please provide details

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32. Do you have any suggestions of ways to facilitate practitioners to obtain information and training about Healthy Start?

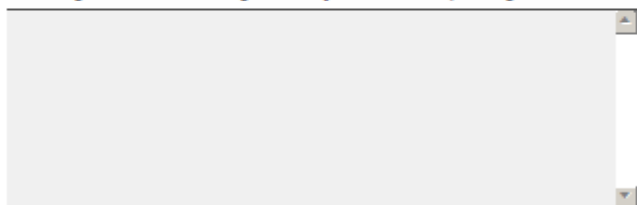
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Section 7: General questions

33. Do you think Healthy Start has had a positive impact on local women and children?

- ☐ Yes
- ☐ No
- ☐ Don't know

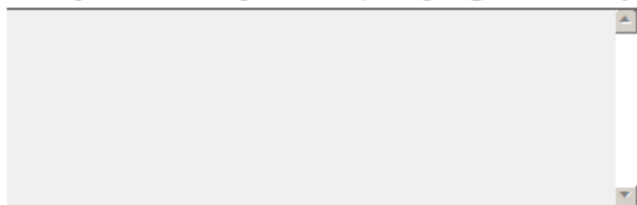
34. If you answered yes to question 33, are you able to give us any examples?

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35. Do you think there are any negative impacts of the Healthy Start scheme?

- ☐ Yes
- ☐ No
- ☐ Don't know

36. If you answered yes to Q35, can you give us examples?

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37. Are there any good points from the previous Welfare Food Scheme that have been lost?

- ☐ Yes
- ☐ No
- ☐ Don't know

38. If you answered yes to Q37, please tell us what

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39. Is there anything else you would like to say about Healthy Start?

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Section 8: About you

40. Which category best describes your current role?

- ☐ Midwife
- ☐ Health Visitor
- ☐ Nurse
- ☐ Early Years Practitioner
- ☐ Support Worker
- ☐ Voluntary Sector Supporter/User Representative
- ☐ Infant Feeding Specialist
- ☐ Obstetrician
- ☐ Paediatrician
- ☐ General Practitioner
- ☐ Public Health Specialist
- ☐ Administrator
- ☐ Dietician
- ☐ Nutritionist
- ☐ Service Commissioner
- ☐ Other (please specify)

41. What type of organisation do you work for?

- ☐ NHS Hospital Trust
- ☐ NHS Community Trust
- ☐ NHS Primary Care Trust or successor organisation
- ☐ Strategic Health Authority
- ☐ Voluntary sector
- ☐ Education/Academic
- ☐ Local Authority
- ☐ Sure Start Children's Centre
- ☐ Other (please specify)

42. Where do you work?

- ☐ East Midlands
- ☐ East of England
- ☐ London
- ☐ North East England
- ☐ North West England
- ☐ South Central England
- ☐ South East England
- ☐ South West England
- ☐ West Midlands
- ☐ Yorkshire and the Humber
- ☐ Other (please specify)

43. What is your role in regard to the Healthy Start Scheme? Please indicate all that are relevant to your role.

- ☐ Advise women and families about the Healthy Start scheme
- ☐ Encourage women who might be eligible to apply for Healthy Start
- ☐ Give potential applicants the Healthy Start application leaflet
- ☐ Help women fill in the application form
- ☐ Sign the application form
- ☐ Provide appropriate health and lifestyle information about healthy eating, breastfeeding and vitamin supplements to Healthy Start applicants
- ☐ Help applicants sort out problems with their Healthy Start claims
- ☐ Recommend women and children to take Healthy Start vitamins
- ☐ Advise women where they can get Healthy Start vitamins
- ☐ Exchange Healthy Start vitamins for vitamin vouchers
- ☐ Sell Healthy Start vitamins
- ☐ Order and distribute Healthy Start vitamins
- ☐ Co-ordinate Healthy Start scheme
- ☐ Set up and monitor Healthy Start vitamin distribution schemes
- ☐ Provide data for the Department of Health
- ☐ Encourage local retailers to join the Healthy Start scheme
- ☐ Other (please specify)

End of questionnaire

Thank you for taking the time to complete this questionnaire

44. The study will be completed in July 2012. If you would like to receive a summary of the findings please provide your e-mail address here.

Appendix 16: National electronic consultation circulation e-mail

Please find below a letter from Prof Mary Renfrew and Prof Liz Dowler. We apologise if you have received more than one copy.

Dear Colleague

Healthy Start: Understanding the use of vouchers and vitamins

We invite you to take part in a national evaluation of the Healthy Start scheme which has been commissioned by the Department of Health. Healthy Start is a government initiative to encourage pregnant women and families from low-income groups to eat a more nutritious diet by providing free vitamins, and vouchers which can be used for plain cows' milk, infant formula or fresh fruit and vegetables, and enabling health professionals to identify vulnerable women earlier in their pregnancies. The Department of Health is especially interested in how the use of vouchers and vitamins could be improved.

We are seeking the views of health and social care practitioners from all relevant disciplines, user representatives and voluntary groups, strategic and operational managers, service commissioners and public health leads.

WE REALLY WANT TO HEAR YOUR VIEWS AND EXPERIENCES

This is an opportunity for you to contribute to the evaluation and shape improvements to the scheme. We want to hear which parts of the Healthy Start scheme are working well and which are not working well. We are particularly interested in what you think the barriers to implementing the scheme are and any examples of good practice or suggestions for improving the scheme.

We would be pleased if you could disseminate the questionnaires to colleagues, organisations and others who may have an interest. We are keen to hear from as wide a range of people as possible, whether health or social care practitioners, managers, user representatives or advocacy groups.

Please follow this link to complete the online questionnaire:

Please complete the questionnaire **by 26th August 2011**

If you have any problems or questions, please contact a member of the research team at: dohs-miru-healthy-start@york.ac.uk or ☎ 01904 321832

With very many thanks for your time and support.

Professor Mary Renfrew
Principal Investigator
Mother and Infant Research Unit,
Department of Health Sciences
University of York

Professor Elizabeth Dowler
Chair of the Project Advisory Group
Department of Sociology, University of Warwick

This study is funded by the Department of Health Policy Research Programme. The work is supported by an Advisory Group with representation from the CPHVA, Health Equalities Alliance, Social Policy Research Unit at the University of York, the Department of Sociology at the University of Warwick, the national Public Health Observatory for Children and Maternity (ChiMat), the Royal College of Midwives, the Royal Society for Public Health, a highly-regarded, independent Consultant in Food Policy (Geoff Rayner), the UKPHA, the Council of the Association of Nutritionists and the Breastfeeding Manifesto Coalition.

Appendix 17: Matrix used to guide sampling for participatory workshops

Sample category	1	2	3	4	5	6	7	8	9	10	Totals
Yorkshire and Humber	✓	✓	✓	✓	✓						5
London						✓	✓	✓	✓	✓	5
High uptake of Healthy Start vouchers	✓	✓	✓			✓	✓				5
Low uptake of Healthy Start vouchers				✓	✓			✓	✓	✓	5
Rural			✓	✓							2
Urban	✓	✓			✓	✓	✓	✓	✓	✓	8
Teens		✓						✓		✓	3
Women from minority ethnic groups ES	✓								✓		2

Key: ES English speaking



Evaluation of Healthy Start

Understanding the use of vouchers and vitamins

Participant Information Sheet - Workshops

We would like to invite you to take part in a research study because your ideas can help us. Before you decide whether you want to take part, it is important for you to understand why the research is being done and what it will involve. This information sheet tells you the purpose of this study. Please read it carefully and discuss it with others if you wish.

What would I have to do if I take part?

- If you agree to take part in this study, you will be invited to attend one workshop, run by an advocacy group called Food Matters, with about nine other women.
- The workshop will last about three hours.
- It will involve activities that allow you to talk freely and openly about your experiences of Healthy Start.
- You will be able to talk as little or as much as you want to.
- Refreshments will be provided.
- To cover any expenses and to thank you for your time, you will be given £20 at the end of the workshop.
- We will provide a crèche to look after your child/children during the workshop if needed

Why is this research being done?

Healthy Start is a government scheme to encourage pregnant women and families on low-incomes to eat a more nutritious diet. The research is being done to find out how Healthy Start is working for families in England and how it could be improved. We are also talking to health practitioners about what they think of Healthy Start.

Why have I been asked?

We want to talk to women about their experiences and views of Healthy Start.

We are inviting:

- Pregnant women and women who have a child under four years old who are receiving Healthy Start vouchers
- Pregnant women and women who have a child under four years old who are receiving benefits or tax credits but have not applied for Healthy Start vouchers, have been refused Healthy Start vouchers or have recently applied for Healthy Start vouchers
- Pregnant women who are 16-18 years old
- Women who have stopped receiving Healthy Start vouchers within the last year

- Women whose family circumstances are such that they think they may be eligible for Healthy Start vouchers, but who are not sure (for example, not receiving benefits but on family income of around £17,000)

Do I have to take part?

No - it is for you to decide whether you wish to take part. If you do, you will be given this information sheet to keep and be asked to sign a consent form. You would be free to withdraw at any time and without giving a reason. If you decide not to take part or if you withdraw at any time, this will not affect your future health care or benefits in any way.

What are the possible advantages of taking part?

- You may find out more about the Healthy Start scheme in your area
- You may learn why healthy eating and vitamins are important for you and your family.
- You will know that you have provided important information to improve Healthy Start.
- Many women enjoy talking about their experiences with others.

Will my taking part in this study be kept confidential?

- All information which is collected about you during the course of the research will be kept confidential.
- You will not be identified.
- Nothing you say will be discussed with other family or community members, or health professionals in a way that identifies you.
- All the information you give us will be kept securely locked in a filing cabinet at the University of York and computer files will have a password so only we can access them.
- Any personal information about participants will be destroyed one year after the end of the research.
- There are some circumstances when the research team would be obliged to disclose information you provide to an appropriate authority, for example if you were to say something that potentially indicated that you or someone else was at risk of harm or abuse.

What will happen to the findings of the research?

A report of the findings will be sent to the Department of Health. The results will be published in journals for health professionals, policy makers and health researchers and in magazines for women and families to read. Everyone who takes part in the study will be offered a short report of the findings.

Who is carrying out this research?

We are researchers from the Mother and Infant Research Unit at the University of York. The Department of Health has asked us to carry out this research looking at the Healthy Start scheme, to see how it works and how it could work better. They are especially interested in how the use of vouchers and vitamins could be improved.

What happens next?

The workshop in your area will take place

At (venue)

On (date)

At (time)

If you would like to come please let the person who gave you this information sheet know or you can let us know directly. Our contact details are at the end of this information sheet.

**Thank you for taking the time to read this information sheet. We hope to meet you at one of our
Healthy Start workshops**

Contact us

To find out more about this study, or to talk to one of the research team, please contact: dohs-miru-healthy-start@york.ac.uk

Or ☎ 01904 321832

Research team:

Professor Mary Renfrew, Professor Jo Green (Senior researchers)

Dr Alison McFadden, Felicia McCormick (Researchers)

Victoria Williams (Facilitator)

Secretary: Jenny Brown

Appendix 19: Consent form participatory workshops

THE UNIVERSITY *of York*
The Department of Health Sciences

MOTHER & INFANT RESEARCH UNIT
DEPARTMENT OF HEALTH SCIENCES
Area 4, Seebohm Rowntree Building
University of York, Heslington, York YO10 5DD
United Kingdom
Switchboard: +44 (0)1904 321832
Fax: +44 (0)1904 321820
Email: am534@york.ac.uk
www.york.ac.uk/healthsciences/miru
Director: Professor Mary J Renfrew



CONSENT FORM

Participatory Workshops

Title of Project: Healthy Start: Understanding the use of vouchers and vitamins

Please initial box

1. I confirm that I have read and understand the information sheet for the above study and have had the opportunity to ask questions.
2. I understand that my participation is voluntary and that I am free to withdraw at any time, without giving any reason, without my health care or legal rights being affected
3. I understand that general research data collected during this study may be looked at by individuals from organisations such as the University of York or NHS Trust for monitoring purposes. I understand that I will not be personally identified
4. I agree to take part in the above study

☐☐☐☐

Name of Participant

Date

Signature

Name of Person taking consent

Date

Signature



Healthy Start: Understanding the use of vouchers and vitamins

Participatory workshop questionnaire

We would be grateful if you would answer a few questions so that we know a bit more about the people who have attended the workshop. Please note that this is **anonymous**: we are not asking you to put your name on this form, so you will not be identifiable.

Please write in your answer or tick a box depending on the type of question.

About you

Are you

Male

☐

Female

☐

How old are you?

years old

What is your ethnic
background?

White British

☐

White other

☐

Asian/Asian British

☐

Black/Black British

☐

Arab

☐

Mixed

☐

Other

☐

How many children do you have?

Please give their ages .

.....

If any of your children do not live in your household, please put a cross by their age.

If there any other children living in your household,

(e.g. your partner's children) please list their ages

How many adults live in your household?

.....

How are they related to you? Please tick all that apply

My husband/wife

☐

My partner (not married)

☐

My mother

☐

My father

☐

Other (please specify, e.g. sister, friend etc)

What is your highest educational qualification?

None

☐

GCSE D – G or equivalent

☐

GCSE A – C or equivalent

☐

A level or equivalent

☐

Degree or equivalent

☐

Postgraduate degree or equivalent

☐

Are you currently:

On maternity leave

☐

A student

☐

Not in paid employment

☐

Employed full-time

☐

Employed part-time

☐

Is your partner (if you have one) currently:

On maternity leave ☐

A student ☐

Not in paid employment ☐

Employed full-time ☐

Employed part-time ☐

Is English your first language?

Yes ☐

No ☐

If no, what is your first language?

.....

.....

Are you (or your wife/partner) currently pregnant?

Yes ☐

No ☐

Are you (or your wife/partner) currently receiving
Healthy Start vouchers?

Yes ☐

No ☐

If no, which of the following applies?

I did receive Healthy Start vouchers but am no longer eligible ☐

I don't know if I am eligible for Healthy Start vouchers ☐

I am not eligible for Healthy Start vouchers ☐

Vitamin supplements

Do you regularly take vitamin supplements?

Yes ☐

No ☐

If yes, are these:

Free Healthy Start vitamins

☐

Vitamins prescribed by a doctor ☐

Vitamins that you have bought ☐

Do you regularly give your pre-school children vitamin supplements? Yes ☐
No ☐

If yes, are these: *Free Healthy Start vitamins* ☐

Vitamins prescribed by a doctor ☐

Vitamins that you have bought ☐

Food shopping

Who in your household decides what food to buy?

Who does the food shopping?

Where is most of your household food shopping done?

Supermarket ☐

Local small shop/convenience store ☐

Market stall ☐

Other (please say where)

Till receipts

Do all the places at which you buy food give receipts? Yes ☐

No ☐

Don't know ☐

If no, for approximately how much of your food shopping would you NOT get a receipt?

Less than a quarter ☐

Between a quarter and a half ☐

More than a half ☐

Do you keep till receipts from your food shopping? *Always* ☐

Sometimes ☐

Never ☐

In the future we may want to do research in which we would ask people to save all their food till receipts and send them to us. We want to find out how acceptable this would be. Could you please tick one of the following:

Yes I would definitely be willing to do this ☐

I might be willing to do this ☐

No I would definitely not be willing to do this ☐

Thank you for answering this questionnaire

Participatory Workshops - Understanding the use of vouchers and vitamins

Workshop outline

Summary

The workshops are designed to provide a relaxed and informal environment where participants will have the opportunity to talk freely and openly about their experiences of the Healthy Start scheme. The basic premise of the workshops is:

- a focus on understanding the opinions and perspectives of the participants and
- using this to help improve the scheme – making it work better for them and people like them.

Methodology

The workshop will use a combination of activities aimed at facilitating participation, the sharing of opinions and perspectives and engagement in addressing a sequence of questions.

The activities will include:

- Introductory focus charts
- Open comments - Hidden secrets walls
- Warm up and introduction
- Continuum
- Evaluation H
- Action steps
- Key statement verification Bubble Charts
- Dot voting prioritisation
- Informal facilitated group discussion
- Participatory evaluation

Although each workshop will address the same themes and questions, different options will be prepared and used. This will allow flexibility in the workshop programme responding to the specific dynamics of different groups of participants.

These activities will be used to address five key questions representing the most important themes in the evaluation of the Healthy Start scheme. Each key question will provide the starting point for each activity within which a sequence of additional prompt questions will be asked addressing specific more detailed questions as identified by the Focus Group research findings.

The **5 key questions** and additional prompt questions will include:

1. What do **you** think? The purpose of the Healthy Start scheme is . . .
 - What do you think it's trying to achieve?
 - What is it trying to do?
2. **What do you receive** if you are part of the Healthy Start scheme?
 - What can you get through the scheme?
 - Can you get anything other than the vouchers?
 - Why do you think these are provided?

3. The aim of the Healthy Start scheme is ‘**to encourage pregnant women and families on low incomes to eat a more nutritious diet**’ (by providing fresh fruit, vegetables and milk, infant formula and vitamins).

How successful do **you** think it is at doing this?

- Why do you think it is successful/not successful?
- Who is on/not on the scheme?

Not on the scheme:

- Why are you not on the scheme?
- What would help you to get on the scheme?

On the scheme:

- What are the factors that influence its success/failure for you?
- Which factors do you think are the most important?
- What steps need to be taken to address these factors?
- What would make it more successful for you?

4. Which of the following statements would you **agree/disagree** with and why?

- Being on the Healthy Start scheme means:
 - I buy more milk
 - I buy more fruit
 - I buy more vegetables
 - I buy more infant formula milk
 - there is no change in the amount of these items I buy
 - the money I would have spent on these items can now be used to buy something else
- Being on the Healthy Start scheme has changed:
 - the way in which I feed my family
 - the way I shop
 - my diet
 - my health
 - my awareness of what I eat
 - nothing in the way I behave and what I eat
- I’m not on the Healthy Start scheme because:
 - It’s difficult to register
 - I don’t feel comfortable visiting or seeing Health Professionals
 - I’m not eligible
 - It’s not important to me/not worth the hassle
 - It’s too embarrassing
 - I don’t know about it/ I don’t know enough about it
- When I am no longer eligible for the scheme (or since I came off the scheme):
 - my child/children will eat less fresh fruit and vegetables
 - my child/children will drink less fresh milk
 - my 2 children will share the food I buy with one voucher
 - I will try to continue to buy the same amount of fresh fruit, veg. and milk
 - I will eat less fresh fruit and veg.

5. Has being on the Healthy Start scheme influenced **decisions you have made about breast-feeding or formula feeding?**
- In what way?
 - Did it influence a decision to formula feed instead of breast feed
 - Did it influence how long you breast-fed your child/children?
 - What else would influence your decisions?
 - What would have a greater influence?

Programme

Step 1	9.15 to 9.30	Registration and refreshments As participants arrive Introductory focus questions <ul style="list-style-type: none"> • What do you hope to get out of this workshop? • What do you think? The purpose of the Healthy Start scheme is . . .
Step 2	Throughout the workshop	Open comments – Hidden secrets <ul style="list-style-type: none"> • Monster moans: What really annoys you about the Healthy Start scheme? • Sneaky Tips: How can the scheme be used to buy other things not on the list?
Step 3	9.30 to 9.40	Welcome, aims, introductions <ul style="list-style-type: none"> • Reason for the workshop • What we hope to achieve • Who's who
Step 4	9.40 to 9.50	Opening question <ul style="list-style-type: none"> • What do you receive if you are part of the Healthy Start scheme? (... anything other than vouchers?) and why?
Step 5	9.50 to 10.10	Continuum <ul style="list-style-type: none"> • The aim of the Healthy Start scheme is 'to encourage pregnant women and families to eat a more nutritious diet' (... by providing fresh fruit, veg. and milk, infant formula and vitamins). How successful do you think it is at doing this?
Step 6	10.10 to 10.45	Evaluation 'H' <ul style="list-style-type: none"> • Why do you think it is successful/not successful? • What are the factors that influence its success/failure for you? • Which factors do you think are the most important? • What steps need to be taken to address these factors? • What would make it more successful for you?
15 minute refreshment break		
Step 7	11.00 to 11.30	Key statement verification Bubble Charts <ul style="list-style-type: none"> • Being on the Healthy Start scheme means: • Being on the Healthy Start has changed:

		<ul style="list-style-type: none"> • I'm not on the Healthy Start scheme because: • When I am no longer eligible for the scheme (or since I came off the scheme):
Step 8	11.30 to 11.50	Informal discussion <ul style="list-style-type: none"> • Has being on the Healthy Start scheme influenced decisions you have made about breast-feeding or formula feeding and for how long?
Step 9	11.50 to 12.00	Conclusions and thank you Participatory evaluation
Step 10	12.00	Close



Evaluation of Healthy Start

Understanding the use of vouchers and vitamins

Participant Information Sheet – Focus Groups

We would like to invite you to take part in a research study because your ideas can help us. Before you decide whether you want to take part, it is important for you to understand why the research is being done and what it will involve. This information sheet tells you the purpose of this study. Please read it carefully and discuss it with others if you wish.

What would I have to do if I take part?

- If you agree to take part in this study, you will be invited to attend one group discussion with about five other women to talk about Healthy Start.
- The group will be run by a researcher and an interpreter who can speak your language
- The group will last about 1½ hours.
- You will be able to talk as little or as much as you want to.
- Refreshments will be provided.
- To cover any expenses and to thank you for your time, you will be given £20 at the end of the group discussion.
- We will provide a crèche to look after your child/children during the discussion if needed

Why is this research being done?

Healthy Start is a government scheme to encourage pregnant women and families on low-incomes to eat a more nutritious diet. The research is being done to find out how Healthy Start is working for families in England and how it could be improved. We are also talking to health practitioners about what they think of Healthy Start.

Why have I been asked?

We want to talk to women about their experiences and views of Healthy Start.

We are inviting:

- Pregnant women and women who have a child under four years old who are receiving Healthy Start vouchers
- Pregnant women and women who have a child under four years old who are receiving benefits or tax credits but have not applied for Healthy Start vouchers, have been refused Healthy Start vouchers or have recently applied for Healthy Start vouchers
- Pregnant women who are 16-18 years old
- Women who have stopped receiving Healthy Start vouchers within the last year
- Women whose family circumstances are such that they think they may be eligible for Healthy Start vouchers, but who are not sure (for example, not receiving benefits but on family income of around £17,000)

Do I have to take part?

No - it is for you to decide whether you wish to take part. If you do, you will be given this information sheet to keep and be asked to sign a consent form. You would be free to withdraw at any time and without giving a reason. If you decide not to take part or if you withdraw at any time, this will not affect your future health care or benefits in any way.

What are the possible advantages of taking part?

- You may find out more about the Healthy Start scheme in your area
- You may learn why healthy eating and vitamins are important for you and your family.
- You will know that you have provided important information to improve Healthy Start.
- Many women enjoy talking about their experiences with others.

Will my taking part in this study be kept confidential?

- All information which is collected about you during the course of the research will be kept confidential.
- You will not be identified in the report sent to the Department of Health or in any publications of magazine articles.
- Nothing you say will be discussed with other family or community members, or health professionals in a way that identifies you.
- All the information you give us will be kept securely locked in a filing cabinet at the University of York and computer files will have a password so only we can access them.
- Any personal information about participants will be destroyed one year after the end of the research.
- There are some circumstances when the research team would be obliged to disclose information you provide to an appropriate authority, for example if you were to say something that potentially indicated that you or someone else was at risk of harm or abuse.

What will happen to the findings of the research?

A report of the findings will be sent to the Department of Health. The results will be published in journals for health professionals, policy makers and health researchers and in magazines for women and families to read. Everyone who takes part in the study will be offered a short report of the findings.

Who is carrying out this research?

We are researchers from the Mother and Infant Research Unit at the University of York. The Department of Health has asked us to carry out some research looking at the Healthy Start scheme, to see how it works and how it could work better. They are especially interested in how the use of vouchers and vitamins could be improved.

What happens next?

The group discussion in your area will take place

At (venue)

On (date)

At (time)

If you would like to come please let the person who gave you this information sheet know or you can let us know directly. Our contact details are at the end of this information sheet.

Thank you for taking the time to read this information sheet. We hope to meet you at one of our Healthy Start group discussions

Contact us

To find out more about this study, or to talk to one of the research team, please contact: dohs-miru-healthy-start@york.ac.uk

Or ☎ 01904 321832

Research team:

Professor Mary Renfrew, Professor Jo Green (senior researchers)

Dr Alison McFadden, Felicia McCormick (researchers)

Victoria Williams (facilitator)

Secretary: Jenny Brown

Appendix 23: Consent form focus groups

THE UNIVERSITY *of York*
The Department of Health Sciences

HEALTHY
START

MOTHER & INFANT RESEARCH UNIT
DEPARTMENT OF HEALTH SCIENCES
Area 4, Seebohm Rowntree Building
University of York, Heslington, York YO10 5DD
United Kingdom
Switchboard: +44 (0)1904 321832
Fax: +44 (0)1904 321820
Email: am534@york.ac.uk
www.york.ac.uk/healthsciences/miru
Director: Professor Mary J Renfrew

CONSENT FORM

Focus Groups

Title of Project: Healthy Start: Understanding the use of vouchers and vitamins

Please initial box

1. I confirm that I have read and understand the information sheet for the above study and have had the opportunity to ask questions.
2. I understand that my participation is voluntary and that I am free to withdraw at any time, without giving any reason, without my health care or legal rights being affected
3. I understand that general research data collected during this study may be looked at by individuals from organisations such as the University of York or NHS Trust for monitoring purposes. I understand that I will not be personally identified
4. I agree to the audio-recording of the focus group
5. I agree to take part in the above study

☐☐☐☐☐

Name of Participant

Date

Signature

Name of Person taking consent

Date

Signature

Appendix 24: Topic guide for focus group discussions with women who do not speak English and telephone interviews with women from Traveller communities

Questions

1. What do **you** think the purpose of the Healthy Start scheme is?
 - What do you think it's trying to achieve?
 - What is it trying to do?
2. **What do you receive** if you are part of the Healthy Start scheme?
 - What can you get through the scheme? –
 - Can you get anything other than the vouchers? – vitamins, advice from HPs
 - How many know about vitamins, where to get them, how many get them for themselves, their children
 - Why do you think these are provided?

The aim of the Healthy Start scheme is '**to encourage pregnant women and families on low incomes to eat a more nutritious diet**' (by providing fresh fruit, vegetables and milk, infant formula and vitamins).

How successful do **you** think it is at doing this?

- Why do you think it is successful/not successful?
- Who is on/not on the scheme?

On the scheme:

- What are the factors that influence its success/failure for you?
- Which factors do you think are the most important?
- What steps need to be taken to address these factors?
- What would make it more successful for you?
- What do you like best about the scheme?
- What annoys you about the scheme?
- How can the scheme be used to buy other things not on the list

Not on the scheme:

- Why are you not on the scheme? E.g.
 - It's difficult to register
 - I don't feel comfortable visiting or seeing Health Professionals
 - I'm not eligible
 - It's not important to me/not worth the hassle
 - It's too embarrassing
 - I don't know about it/ I don't know enough about it
- What would help you to get on the scheme?

3. For those on Healthy Start

A). Has being on the Healthy Start scheme changed the way you shop; if so, how?

- E.g. do you:
 - buy more milk
 - buy more fruit
 - buy more vegetables
 - buy more infant formula milk
 - or is there no change in the amount of these items you buy
 - do you spend the money you would have spent on these items to buy other things

B) Has being on the Healthy Start scheme changed the way you feed your family; if so, how?

C) Has being on the Healthy Start scheme changed your diet; if so, how?

D) Has being on the Healthy Start scheme changed your health; if so, how?

5. What will happen when you are no longer on the Healthy Start scheme?

e.g.

- my child/children will eat less fresh fruit and vegetables
- my child/children will drink less fresh milk
- my 2 children will share the food I buy with one voucher
- I will try to continue to buy the same amount of fresh fruit, veg. and milk
- I will eat less fresh fruit and veg.

7. Has being on the Healthy Start scheme influenced **decisions you have made about breast-feeding or formula feeding?**

- In what way?
- Did it influence a decision to formula feed instead of breast feed
- Did it influence how long you breast-fed your child/children?
- What else would influence your decisions?
- What would have a greater influence?



Evaluation of Healthy Start

Understanding the use of vouchers and vitamins

Participant Information Sheet – telephone interviews

We would like to invite you to take part in a research study because your ideas can help us. Before you decide whether you want to take part, it is important for you to understand why the research is being done and what it will involve. This information sheet tells you the purpose of this study. Please read it carefully and discuss it with others if you wish.

What would I have to do if I take part?

- **If you agree to take part in this study, you will be invited to talk about Healthy Start with a researcher by telephone.**
- **The telephone call will last about 30 to 45 minutes.**
- You will be able to say as little or as much as you want.
- To cover any expenses and to thank you for your time, you will be sent £20 after the telephone interview.

Why is this research being done?

Healthy Start is a government scheme to encourage pregnant women and families on low-incomes to eat a more nutritious diet. The research is being done to find out how Healthy Start is working for families in England and how it could be improved. We are also talking to health practitioners about what they think of Healthy Start.

Why have I been asked?

We want to talk to women about their experiences and views of Healthy Start.

We are inviting:

- Pregnant women and women who have a child under four years old who are receiving Healthy Start vouchers
- Pregnant women and women who have a child under four years old who are receiving benefits or tax credits but have not applied for Healthy Start vouchers, have been refused Healthy Start vouchers or have recently applied for Healthy Start vouchers
- Pregnant women who are 16-18 years old
- Women who have stopped receiving Healthy Start vouchers within the last year
- Women whose family circumstances are such that they think they may be eligible for Healthy Start vouchers, but who are not sure (for example, not receiving benefits but on family income of around £17,000)

Do I have to take part?

No - it is for you to decide whether you wish to take part. If you do, you will be given this information sheet to keep and be asked to sign a consent form. You would be free to withdraw at any time and without giving a reason. If you decide not to take part or if you withdraw at any time, this will not affect your future health care or benefits in any way.

What are the possible advantages of taking part?

- You may find out more about the Healthy Start scheme in your area
- You may learn why healthy eating and vitamins are important for you and your family.
- You will know that you have provided important information to improve Healthy Start.
- Many women enjoy talking about their experiences.

Will my taking part in this study be kept confidential?

- All information which is collected about you during the course of the research will be kept confidential.
- You will not be identified in the report sent to the Department of Health or in any publications of magazine articles.
- Nothing you say will be discussed with other family or community members, or health professionals in a way that identifies you.
- All the information you give us will be kept securely locked in a filing cabinet at the University of York and computer files will have a password so only we can access them.
- Any personal information about participants will be destroyed one year after the end of the research.
- There are some circumstances when the research team would be obliged to disclose information you provide to an appropriate authority, for example if you were to say something that potentially indicated that you or someone else was at risk of harm or abuse.

What will happen to the findings of the research?

A report of the findings will be sent to the Department of Health. The results will be published in journals for health professionals, policy makers and health researchers and in magazines for women and families to read. Everyone who takes part in the study will be offered a short report of the findings.

Who is carrying out this research?

We are researchers from the Mother and Infant Research Unit at the University of York. The Department of Health has asked us to carry out some research looking at the Healthy Start scheme, to see how it works and how it could work better. They are especially interested in how the use of vouchers and vitamins could be improved.

What happens next?

If you would like to take part, the person who gave you this information sheet will pass on your telephone number to the research team. A researcher will call you to explain the study further, to give you the opportunity to ask any questions and to make an appointment for the telephone interview. Before the telephone interview takes place, we will send you a consent form for you to sign and send back to us to say you agree to take part in the study. If you prefer to contact us directly, our contact details are at the end of this information sheet.

Thank you for taking the time to read this information sheet. We hope to talk to you about the Healthy Start scheme

Contact us

To find out more about this study, or to talk to one of the research team, please contact: dohs-miru-healthy-start@york.ac.uk

Or ☎ 01904 321832

Research team:

Professor Mary Renfrew, Professor Jo Green (senior researchers)

Dr Alison McFadden, Felicia McCormick (researchers)

Secretary: Jenny Brown

Appendix 26: Characteristics of electronic consultation respondents by employing organisation and geographical region

Table 1: Respondents by employing organisation

What type of organisation do you work for?	N	%
NHS Hospital Trust	193	31.1
NHS Primary Care Trust or successor organisation	170	27.4
NHS Community Trust	162	26.1
Sure Start Children's Centre	37	6.0
Local Authority	10	1.6
Voluntary Sector	9	1.5
Strategic Health Authority	4	0.6
Education/Academic	2	0.3
Other	33	5.3
Total answered question	620	

Table 2: Respondents by geographical region

Where do you work?	N	%
North West England	187	30.3
Yorkshire and the Humber	109	17.6
London	66	10.7
East of England	52	8.4
South East England	44	7.1
East Midlands	40	6.5
South West England	36	5.8
North East England	32	5.2
West Midlands	31	5.0
South Central England	15	2.3
Other	7	1.1
Total answered question	618	

Appendix 27: Quantitative results of electronic consultation

Question	Strongly agree N (%)	Agree N (%)	Neither agree nor disagree N (%)	Disagree N (%)	Strongly disagree N (%)	Don't know N (%)
Section 1: Providing women with information about Healthy Start						
I have adequate time to discuss Healthy Start with women (N=513)	63 (12.3)	247 (48.1)	104 (20.3)	79 (15.4)	16 (3.1)	4 (0.8)
Local women who may be eligible are mostly already aware of Healthy Start. (N=580)	25 (4.3)	184 (31.7)	99 (17.1)	186 (32.1)	59 (10.2)	27 (4.6)
Section 2: Providing appropriate health-related information						
As a result of Healthy Start I am able to identify vulnerable women earlier in their pregnancies than I otherwise would. (N=436)	14 (3.2)	71 (16.3)	160 (36.7)	119 (27.1)	63 (14.4)	9 (2.1)
As a result of Healthy Start I am able to provide advice and support for vulnerable women earlier in their pregnancies than I otherwise would (N=424)	13 (3.1)	103 (24.3)	129 (30.4)	113 (26.6)	59 (13.9)	7 (1.6)
Section 3: Eligibility for Healthy Start						
When I see them, local women already know whether they are eligible for Healthy Start. (N=523)	8 (1.5)	122 (23.3)	140 (26.8)	198 (37.9)	45 (8.6)	10 (1.9)
I have no difficulty identifying women who are eligible for Healthy Start. (N=508)	48 (9.4)	214 (42.1)	123 (24.2)	97 (19.1)	22 (4.3)	4 (0.8)
Section 4: Applying for Healthy Start						
There is support available to help local women to apply for Healthy Start. (593)	36 (6.1)	270 (45.5)	110 (18.5)	87 (14.7)	19 (3.2)	71 (12)
Local women who are not fluent in English can easily get help to apply for Healthy Start. (N=588)	7 (1.2)	113 (19.2)	123 (20.9)	178 (30.2)	54 (9.2)	113 (19.2)
Local women who are unable to read can easily get help to apply for Healthy	12 (2)	127 (21.6)	131 (22.2)	159 (27)	57 (9.7)	103 (17.5)

Question	Strongly agree N (%)	Agree N (%)	Neither agree nor disagree N (%)	Disagree N (%)	Strongly disagree N (%)	Don't know N (%)
Start(N=589)						
Section 5: Using Healthy Start vouchers for milk/formula milk/fresh fruit and vegetables/frozen vegetables						
Local women are able to use their Healthy Start vouchers at a wide range of local retailers. (N=597)	52 (8.7)	288 (48.2)	84 (14.1)	43 (7.2)	16 (2.7)	114 (19.1)
I know from personal experience that some local retailers will allow women to exchange Healthy Start vouchers for non-allowable products. (N=575)	39 (6.8)	104 (18.1)	114 (19.8)	72 (12.5)	10 (1.7)	236 (41)
Section 6: Healthy Start vitamins						
Vitamin supplements are important for the health of pregnant women and children under 4 years old who are eligible for Healthy Start. (N=612)	329 (53.8)	224 (36.6)	42 (6.9)	9 (1.5)	4 (0.6)	4 (0.6)
Local women understand the importance of vitamins for themselves. (N=609)	15 (2.5)	100 (16.4)	137 (22.5)	260 (42.7)	68 (11.2)	29 (4.8)
Local women understand the importance of vitamins for their children. (n=607)	20 (3.3)	158 (26)	134 (22.1)	211 (34.8)	56 (9.2)	28 (4.6)
Local women know where they can obtain Healthy Start vitamins for themselves and their children. (N=604)	12 (2)	147 (24.3)	129 (21.4)	199 (32.9)	80 (13.2)	37 (6.1)
I know where to advise women to get Healthy Start vitamins in my area (N=584)	184 (31.5)	257 (44)	36 (6.2)	47 (8)	46 (7.9)	14 (2.4)
Healthy Start vitamins are actively promoted to local women receiving or applying for Healthy Start. (N=600)	94 (15.7)	215 (35.8)	97 (16.2)	86 (14.3)	53 (8.8)	55 (9.2)
I believe that all pregnant women should receive free Healthy Start vitamins regardless of whether they are eligible for Healthy Start vouchers. (N=603)	277 (45.9)	144 (23.9)	49 (8.1)	95 (15.7)	32 (5.3)	6 (1)
I believe that all children under 4 years old should receive free Healthy Start vitamins	275 (45.2)	161 (26.5)	50 (8.2)	86 (14.1)	27 (4.4)	9 (1.5)

Question	Strongly agree N (%)	Agree N (%)	Neither agree nor disagree N (%)	Disagree N (%)	Strongly disagree N (%)	Don't know N (%)
regardless of whether they are eligible for Healthy Start vouchers. (N=608)						
Section 7: Information for practitioners						
I know as much as I need to know about the Healthy Start scheme. (N=599)	85 (14.2)	277 (46.2)	106 (17.7)	98 (16.4)	28 (4.7)	5 (0.8)
I am able to get the information I need from the Healthy Start website. (597)	106 (17.7)	361 (60.5)	69 (11.6)	25 (4.2)	2 (0.3)	34 (5.7)
I know where I can get information about Healthy Start but I don't have time to access it. (N=591)	40 (6.8)	220 (37.2)	150 (25.4)	151 (25.5)	22 (3.7)	8 (1.3)
I am able to access information about the uptake of Healthy Start vouchers in my area. (589)	41 (7)	143 (24.3)	94 (16)	168 (28.5)	53 (9)	90 (15.3)
I am able to access information about the uptake of Healthy Start vitamins in my area. (N=592)	41 (6.9)	139 (23.5)	86 (14.5)	167 (28.2)	63 (10.6)	96 (16.2)

Question	N (%)	N (%)	N (%)	N (%)	N [%]
Do you think the eligibility criteria for Healthy Start vouchers are about right? (N= 603)	<i>Yes, they are about right</i> 297 (49.2)	<i>No, more women should be eligible</i> 205 (34)	<i>No, fewer women should be eligible</i> 7 (1.2)	<i>Don't know</i> 20(3.3)	<i>Other (please specify)</i> 74 [12.2]
I think the value of Healthy Start vouchers is about right. (N = 563)	<i>Yes, it is about right</i> 398 (70.7)	<i>No, it should be less</i> 9 (1.6)	<i>No, it should be more</i> 156 (27.7)		
Have you had training to perform your role in regard to Healthy Start? (N = 604)	<i>Yes, I have had training</i> 106 (17.5)	<i>Yes, I have had training and I would like further training</i> 33 (5.5)	<i>No, I have not had training</i> 276 (45.7)	<i>No, I have not had training and I would like training</i> 139 (23)	<i>Other (please specify)</i> 50 (8.3)
Have you undertaken the Healthy Start e-learning CPD course (found on the Healthy Start website)? (N = 601)	<i>Yes</i> 48 (8)	<i>No, I am aware of the course but have not undertaken it</i> 63 (10.5)	<i>No, I was unaware of the e-learning course</i> 448 (74.5)	<i>No, course not relevant to me as I am not a Health Professional</i> 21 (3.5)	<i>Other (please specify)</i> 21 (3.5)
Do you think Healthy Start has had a positive impact on local women and children? (N = 611)	<i>Yes</i> 304 (49.8)	<i>No</i> 41 (6.7)	<i>Don't know</i> 266 (43.5)		
Do you think there are any negative impacts of the Healthy Start scheme? (N = 603)	<i>Yes</i> 142 (23.5)	<i>No</i> 291 (48.3)	<i>Don't know</i> 170 (28.2)		
Are there any good points from the previous Welfare Food scheme* (milk tokens) that have been lost? (N = 600)	<i>Yes</i> 131(21.8)	<i>No</i> 235 (39.2)	<i>Don't know</i> 234 (39)		



Healthy Start: Understanding the use of vouchers

We are researchers from the Mother & Infant Research Unit at the University of York. The Department of Health has asked us to carry out some research looking at the Healthy Start scheme, to see how it works and how it could work better. They are especially interested in how the use of vouchers could be improved. This work could help mothers like yourselves in the future. The research will start in January 2011 and finish in June 2012.

One of the ways in which we will do this research is to invite some people who have had first-hand experience of the scheme to help us to make sure that we are asking the right questions and interpreting the answers correctly. This is where you come in.

- We are looking for parents with experience of Healthy Start who would be prepared to comment on our plans and tell us what they think. We would hope that you would stay involved throughout the project so that you can continue to give us your views and advice as the research unfolds.
- We are looking for a group of 5 or 6 mothers who will meet 4 times altogether to talk about the research and give us advice.
- We will ask that everything said in the meetings is considered to be confidential so that nobody need worry that other people will be told what they have said.
- The meetings will all be in the Choto Moni Children's Centre in Chapeltown and will last between 1 and 1½ hours. We will discuss with you the best day and time for these. We cannot offer childcare but we will pay you back if you need to pay someone else for child-minding. We will also give you £10 to say 'Thank You' at each meeting you attend.
- We believe that this is important research which will help parents like yourselves in the future. We will give you a letter at the end of the project that you can show to other people so that they will know what an important role you have played. .
- This is a rare chance to make your voice heard on an important topic and we hope that you will want to take part. We don't think that there are any risks. We guarantee that what you tell us won't be used in a way that will allow anyone to link particular stories back to you.

The first meeting will be on Monday 17th January 2011 from 1.30-3pm at Choto Moni Children's Centre.

We look forward to seeing you there.

Jo Green, Alison McFadden, Mary Renfrew
Mother & Infant Research Unit, University of York
☎ 01904 321832

Sarah Bennett
Specialist Midwife
☎ 0113 2066392

Rose McCarthy
NCT Antenatal Teacher

Appendix 29: Proposed list of attendees at cross-sectoral workshops

Professional Role	
1.	Community midwife
2.	Teenage pregnancy midwife
3.	Health visitor
4.	Specialist health visitor
5.	Early year's practitioner
6.	Family nurse
7.	Family support worker
8.	Children's Centre Locality Manager
9.	Children's Centre Manager
10.	Children's Centre/ Health Centre Receptionist
11.	Administrator
12.	Infant feeding lead
13.	Infant feeding supporter
14.	Bi-lingual worker/ interpreter
15.	GP
16.	Paediatrician
17.	Nursery nurse
18.	Community dietician
19.	Pharmacist
20.	Consultant in Public Health - local
21.	Consultant in Public Health - regional
22.	Healthy Start scheme lead – local
23.	Healthy Start scheme lead - regional
24.	Service manager
25.	Service commissioner
26.	PCT representative
27.	Social Care Trust representative
28.	Acute Trust Representative
29.	Local Authority Representative
30.	Voluntary sector – infant feeding
31.	Voluntary sector – vulnerable groups
32.	Representative from a locality in another region where the scheme is working well

Appendix 30: Table of recommendations with ratings for importance and feasibility completed at cross-sectoral workshops

Recommendation	Importance mean score	Feasibility mean score	Impact of recommendation	Recommended action for:
General benefits and importance of Healthy Start				
Maintain the Healthy Start scheme as a means of promoting healthy eating choices for families on low incomes.	10	10	Improved nutrition for mothers, infants and families	Department of Health
Identify local strategic champions, to ensure there is senior accountability for implementation of the Scheme*	7	6	Improved implementation and efficiency Health benefits for population	Department of Health NHS Trusts, Directors of Public Health, Local Authorities
Evaluate the costs and effectiveness of the Healthy Start scheme	9.3	5.8	Increased efficiency of health sector investment and increased health of the population	Department of Health
Evaluate the impact of vouchers on demand for Healthy Start-related products. The evaluation could consider the impact of alternative voucher values and eligibility criteria.	10	8	Increased uptake of the scheme Improved nutrition for mothers and infants Increased efficiency and effectiveness	Department of Health
Information provision and awareness of Healthy Start				
Increase awareness of the target population of the Healthy Start scheme and what it is trying to achieve e.g. through local and national media campaigns	10	9	Increased awareness of health practitioners and public Increased uptake of Healthy Start Improved nutrition for mothers, infants and families	Department of Health, Primary Care Trusts/Successor organisations, Local Authorities, Directors of Children's Social Care Services, Children's Centres Public Health England, Directors of Public Health, Professional Organisations, The media
Include Healthy Start in routine communications relating to qualifying benefits and tax credits	10	10	Increased uptake of Healthy Start Improved nutrition for mothers, infants	Department of Work and Pensions, Department

Recommendation	Importance mean score	Feasibility mean score	Impact of recommendation	Recommended action for:
			and families	of Health Benefits and Job Centre staff
Embed provision of information about Healthy Start in antenatal, postnatal and child health pathways and guidelines e.g. through routine enquiry about possible eligibility and provision of information and audit compliance	9.5	9	Increased uptake of Healthy Start Improved nutrition for mothers, infants and families	NHS Trusts, health practitioners, Service Commissioners, Directors of Public Health, Infant Feeding Networks, Children's Centres, NICE
Ensure adequate supply of information in a variety of accessible formats including relevant languages	9	5	Increased uptake of Healthy Start Improved nutrition for mothers, infants and families Reduced health inequalities	Department of Health, Directors of Public Health, NHS Trusts, Children's Centres Start4Life, Change4Life
Include all of the early years workforce from all sectors in promoting Healthy Start to families and providing health related information	10	7.5	Increased uptake of Healthy Start Improved health and nutrition for mothers, infants and families Reduced health inequalities	Local Authority, Social Care and Early Years, Children's Centres, NHS Trusts, Health Practitioners, Voluntary Sector
Consider the incoming changes to commissioning in the recommendations which will bring even more diversity to local commissioning arrangements	10	Not known	Increased uptake of Healthy Start Improved nutrition for mothers, infants and families Reduced health inequalities	NHS Commissioning Board, Department of Health Local commissioning groups
Opportunity for providing health-related and lifestyle information				
Develop an overarching strategy to encourage 'vulnerable' pregnant women to make early contact with health services	10	8.2	Earlier contact, Increased uptake of folic acid supplements, Reduced prescription costs, Improved health and care for mother and infant, Cross-sectoral communication earlier	Department of Health, NICE, Schools, Community groups, Asylum Teams, Voluntary sector health practitioners, Public Health coordinating with acute and primary

Recommendation	Importance mean score	Feasibility mean score	Impact of recommendation	Recommended action for:
				care, Early year's teams Children's Centres, Clinical Commissioning Groups
Use contemporary methods of making contact with women e.g. text messaging, websites, drop-in centres.	9.5	7.7	Earlier contact and engagement, Increased uptake of folic acid supplements, Reduced prescription costs, Better knowledge and increased participation, Increased uptake and access to Healthy Start	Department of Health, Department of Work and Pensions, Public Health, Community groups, Asylum Teams, Voluntary sector, Children's Centres Health practitioners, Contraception and Sexual Health (CASH) Clinics, Parent champions, Job centre plus, Benefits agencies
Map and evaluate good practice initiatives and embed in routine practice	8.7	8.8	Earlier contact Awareness of Folic acid Reduced prescription costs Speed up good practice adoption Prevent duplication	Department of Health, Healthy Start Scheme team, Researchers, Commissioners Public Health England, CHIMAT
Eligibility				
Streamline eligibility criteria and widen access to make more women eligible	9	8.5	Increased uptake of Healthy Start by vulnerable women and those from minority ethnic groups Improved health	Department of Health, Department of Work and Pensions, NHS, Child Benefit
Take Healthy Start vitamin supplements out of the eligibility criteria	10	10	Improved health Increased uptake of vitamins Less bureaucracy for Primary Care Trusts	Commissioners, Health Practitioners, Children's Centres Pharmacies, Department of Health, NHS, Clinical commissioning groups,

Recommendation	Importance mean score	Feasibility mean score	Impact of recommendation	Recommended action for:
				Health and wellbeing boards
Consider how to target families whose circumstances change	8.3	7.7	Improved nutrition	Department of Health, Department of Work and Pensions
Extend the scheme to the child's fifth birthday	5	5	Improved child nutrition	Department of Health
Develop tools to help women and practitioners to identify who is eligible	2	8	Improved uptake	Department of Work and Pensions , Citizens' Advice Bureaux, Voluntary Sector, Family Services, Children's Centres
Develop proper communications package around whole of Healthy Start, including publicizing and updating website, tools to identify eligibility now and under changes to welfare*	10	10	Appropriate uptake	Department of Health, Department of Work and Pensions, HRMR
Applying for Healthy Start				
Provide consistent and proactive support for women to complete application forms,	8.7	7	Improved access and uptake Fewer delays Take emotion and judgement out of application process – less stigma and automatic right	Administration and support staff e.g. in Children's Centres, Family support workers, health practitioners, Citizens' Advice Bureaux, Voluntary Sector, Job Centre Staff, HMRC, Department of Health, Department of Work and Pensions, Healthy Start issuing unit
Provide alternative to posting application forms e.g. telephone, online options	7	10	Increased uptake Fewer delays More options for families Less invasive and embarrassing	Healthy Start issuing unit, Department of Health, Department of Work and Pensions , Health Centres, Children's

Recommendation	Importance mean score	Feasibility mean score	Impact of recommendation	Recommended action for:
				Centres, Retailers
Provide forms in different languages and formats	10	9.5	Increased access and uptake for the vulnerable Fewer delays	Department of Health, Department of Work and Pensions
Improve the application process e.g. authorise claims and send out vouchers within a shorter timescale, link application to other benefits, avoid the need for multiple applications, provide free phone helpline with different language options for applicants to follow-up claims. Inform applicants that if they do not hear within a specified time they should follow it up.	10	10	Increased access and uptake	Healthy Start issuing unit, Department of Health, Department of Work and Pensions
Extend the categories of practitioners who can sign the form/remove the requirement for a signature as this does not appear to be achieving the aim of providing health related information	5.5	10	Increased access and uptake Speed up process Removes judgements of eligibility	Midwives, GPs, Health Visitors, Family Support Workers, Department of Health, Department of Work and Pensions , Public health
Make the Healthy Start scheme more sensitive to changing financial circumstances e.g. seasonal work, self-employment etc, change of address,	5	7	Increased access	Healthy Start issuing unit, Department of Health, Department of Work and Pensions
Streamline timing of application with routine antenatal visit schedule so that application forms are signed as early as possible and women do not have to make extra visits	8.5	10	Speed up application process	Midwives, Service Commissioners, GPs, Professional organisations
Using Healthy Start Vouchers				
Increase value of vouchers in line with rises in food prices	10	8.3	Maintain improvement in nutrition May encourage more women to apply Improve health More likely families will be able to buy foods	Department of Health, Treasury
Promotion of Healthy Start should include clear	9.7	9.7	Appropriate use of vouchers	Higher Education

Recommendation	Importance mean score	Feasibility mean score	Impact of recommendation	Recommended action for:
messages about the goods which can be bought with Healthy Start vouchers including recent update to include frozen fruit and vegetables			Improved nutrition Improve understanding of the scheme Better awareness of families and health practitioners	Institutions, Retailers, health practitioners, Family support workers/peer supporters, clinical commissioning groups, Department of Health
Health promotion needs to address misunderstandings about what constitutes healthy fruit and vegetables that can contribute to the five-a-day.	9.7	7.2	Healthier eating in whole population Better uptake of appropriate foods	Public Health England, Schools, Health practitioners, Local authorities
Promote Healthy Start to small retailers, market stalls, community food projects and value supermarkets to increase outlets and options for women.	9.7	5.5	Increased outlets and options for women Easier access	Department of Health, Public Health, Local Authorities, Environmental health
Ensure that retailers registered for the scheme clearly indicate this and that local lists of registered retailers are easily available for beneficiaries and practitioners	9.7	8.2	Increased uptake	Retailers, Department of Health, Local authorities, Food Safety Officers, Trading Standards, Local public health teams, health practitioners, Children's Centres
Work with retailers to ensure the system for registration for Healthy Start and redeeming the value of vouchers is as simple as possible	9.7	8.3	Increased uptake Increased access	Retailers, Department of Health, Local authorities, Trading Standards
Improve monitoring of the scheme to eliminate as far as possible the use of vouchers for non-allowable goods	7	4	Proper use of scheme to improve nutrition and provide a nutritional safety net for low-income families Eliminate/reduce purchase of non-allowable goods	Department of Health, Local authorities, Trading Standards
Work with retailers to ensure consistency in how	9.3	4.5	Improve acceptability and uptake of	Retailers

Recommendation	Importance mean score	Feasibility mean score	Impact of recommendation	Recommended action for:
vouchers can be used (e.g. how many can be accepted in one transaction and for what goods) and to eradicate negative attitudes from retail staff			vouchers Consistent approach especially in larger stores	Department of Health
Provide vouchers in smaller denominations, sized to fit in a purse or consider adopting a swipe card system	9 (denomination) 7.3 (size) 6 (card)	7.7 (denomination and size) 5.7 (card)	More effective use of voucher value Limit trade on black market Increase uptake of vitamins and fruit and vegetables. Reduce stigma Allow collection of data	Department of Health Retailers
Ensure the information on healthy eating and suggested recipes sent to beneficiaries meet the needs of women from diverse populations and backgrounds.	9	10	Increase accessibility and acceptability of recipes Improved nutrition	Department of Health, Directors of Public Health, Nutritionists, Start4life
Evaluate the potential of the Infant Feeding Survey (when it becomes available) for further understanding of voucher use and demand for Healthy Start products	9.7	10	Increased effectiveness and efficiency	Department of Health
Investigate variation of voucher use through linking Department of Health datasets with nationally held data	8	9	Increased effectiveness and efficiency	Department of Health
Work with retailers to label foods as Healthy Start products (but not infant formula)*	9	10	Ease of use Increase uptake of fruit and vegetables	Department of Health Retailers
Vitamins				
Develop distribution mechanisms that do not require women to make a separate trip to collect them	10	6	Improved health of mothers, children and whole population Reduced costs for families and NHS	Department of Health Children's Centres, health practitioners, Primary Care Trusts, pharmacies, Local Authorities, Public Health to organise among Trusts, retailers
Increase awareness among women and families of	9.5	6.5	Improved health of mothers, children and	Public Health, Local

Recommendation	Importance mean score	Feasibility mean score	Impact of recommendation	Recommended action for:
benefits of vitamins			whole population Reduced costs Improve understanding of the benefits and increase uptake	authorities, Media, Department of Health – fits in with other campaigns
Increase awareness among practitioners of benefits of vitamins especially GPs	9.5	8.5	Improved health of mothers, children and whole population Reduced costs Increase awareness and involvement of families	Public Health, Clinical Commissioning Groups, National Commissioning Board, Primary Care Trusts, Professional organisations
If continuing with vitamin coupons, ensure they are easily identifiable, remove expiry dates	10	7	Improved health of mothers, children and whole population Reduced costs Increased uptake	Department of Health, Healthy Start Issuing unit
Remove vitamins from Healthy Start scheme and provide free universally to pregnant, postnatal and breastfeeding women and children up to fifth birthday	10	9.7 (pregnant women) 8.7 (postnatal women and children)	Improved health of mothers, children and whole population Reduced costs of treating illness, deficiencies and reduced administration costs Make scheme easier to administer Reduce stigma Easier for professionals to do their job	Department of Health, Primary Care Trusts, Clinical Commissioning Groups, Public Health
Sort out distribution and supply chain to sustain continuous stock of in date vitamins	10	7	Improved health of mothers, children and whole population Reduced costs Improved uptake Vitamins available when needed Less waste	Healthy Start issuing department, Department of Health, those responsible for local ordering and distribution - Primary Care Trusts, Health Centres, distribution centres
Give/sell/prescribe Healthy Start vitamins to	10	10	Improved health of mothers, children and	Department of Health

Recommendation	Importance mean score	Feasibility mean score	Impact of recommendation	Recommended action for:
pregnant/pre-conceptual women at the earliest opportunity without waiting for eligibility for Healthy Start to be confirmed.			whole population Reduced costs Improved uptake Vitamins available when needed Less waste	Children's Centres, health practitioners, Primary Care Trusts, pharmacies, Local Authorities, Public Health to organise among Trusts, retailers
Develop schemes to make Healthy Start vitamins for women and children available for purchase for those not-eligible for Healthy Start.	4	4	Improved health of mothers, children and whole population Reduced costs Increase uptake and accessibility	Department of Health, Local Authorities, Children's Centres, Public Health
In light of the forthcoming SACN review (due in Autumn 2014), review the dose of vitamin D for women and children and the recommended starting age for the children's vitamins.	10	10	Improved population health More appropriate and consistent approach with the best impact More appropriate dosage	Department of Health, SACN, Professional organisations
Clarify all benefits and risks of vitamins being distributed to all pregnant women	10	10	Increase in dispensing of vitamins and improved health of mother and child	Department of Health, SACN, Primary Care Trusts, Local Authorities, Children's Centres, Media
Improve quality of vitamins claims database	10	8	Increase in dispensing of vitamins and improved health of mother and child Better monitoring and evaluation of Scheme	Department of Health, NHS Trusts and all organisations providing information to Department of Health
Create reporting framework for. distribution of vitamins that meets commissioners' needs	10	2	Increased efficiency and uptake Better monitoring and evaluation of Scheme	Department of Health
Healthy Start and infant feeding				
There needs to be a discussion regarding the implications of retaining or removing infant formula from Healthy Start for the health and nutrition of infants and children in low-income groups	10	6	Improved understanding of breastfeeding Positive message is healthy food. Breastfeeding realigned as positive and cost effective More informed choice	Public Health England, Professional organisations, Department of Health, health practitioners

Recommendation	Importance mean score	Feasibility mean score	Impact of recommendation	Recommended action for:
			Retains safety net	
Any increase in voucher value to cover the cost of infant formula must be for both formula feeding and breastfeeding families.	9.7	6.7	Potential increase in the aim of the scheme Improvement in health and nutrition Retain safety net Remains realistic	Department of Health
Information about breastfeeding for parents should avoid giving the impression that women can only breastfeed if they have a healthy diet as this can be misinterpreted and felt to be unrealistic for many low-income families.	10	7.7	Better understanding and Increase in breastfeeding rates	SACN, Public Health, Department of Health, Higher Education Institutions, health practitioners, breastfeeding supporters, Voluntary groups, Children's Centres, Professional organisations
Consideration of including added incentives for breastfeeding mothers	7	9.2	Increase breastfeeding rates and general health Potential impact on formula companies Improved public health	Department of Health
Differential guidelines regarding the use of vitamin supplements for infants who are breastfed and those who are formula need to be framed in such way that breastmilk is seen as the norm and not deficient	10	10	Health Outcomes National policy guideline based on best evidence	SACN, Public Health, Department of Health, Professional organisations bodies, Formula companies to adapt info for mothers, Local health providers and commissioners, Baby Friendly Initiative, Media
Education and training				

Recommendation	Importance mean score	Feasibility mean score	Impact of recommendation	Recommended action for:
Provide education and training of practitioners who encounter pregnant women and young families about their role regarding Healthy Start so that they do not see themselves as 'gatekeepers'	10	10	Increased uptake	Department of Health, NICE, Baby Friendly Initiative, Higher Education Institutions
Embed information and means of keeping up to date regarding welfare benefits for pregnant women and young families in the initial and ongoing education and training of health and social care practitioners.	4.5	3	Increased uptake	Continuing Professional Development providers, Local Authorities, Professional organisations, Health Education England, Higher Education Institutions
Identify local leadership/Healthy Start champions to cascade information and training to all staff e.g. Infant feeding leads	8	6	Better informed practitioners Increased uptake and access	Directors of Public Health/Public Health Strategists, Service managers, health practitioners
Create core resources for local champions to use*	10	10	Better informed practitioners Increased uptake and access	Department of health
Raise awareness of DH website and e-learning CPD course Include in Key Performance Indicators/Quality Outcomes Framework	10	9	Better informed practitioners Increased uptake and access	Department of Health, Directors of Public Health/Public Health Strategists, Service managers, health practitioners
Develop multi-sector/multi-professional approaches linked to other high profile policies e.g. healthy weight and Breastfeeding Friendly Initiative	8	8	Improved health and nutrition Consistent messages	Department of Health, Directors of Public Health Strategists, Service managers, health practitioners

*Recommendation added by cross-sectoral workshop

Appendix 31: Review questions for each Healthy Start database

Review questions	Approach to investigation
<i>Does the number of observations contained in the dataset permit economic analysis with enough statistical power, permit sufficient stratifications and allow regression techniques to apply?</i>	Ascertained on the basis of a minimum sample size required to establish the effect of vouchers on demand for Healthy Start products, the absence/presence of design effects and scope for selection bias (Baguley, 2004; Faul et al. 2009; Heckman, 1979; Kirkwood & Sterne, 2003).
<i>Is there any missing value in the variables of interest (e.g. quantity of vouchers used, responses related to the use of vouchers)? If so, what is the extent of missing data? Are these data missing at random? Is there any scope for imputation?</i>	Examination of missing values in the respective databases and linkage to individuals' characteristics.
<i>Can the analysis be performed at the level of (i) individual women; (ii) individual child; (iii) individual family; (iv) individual retailer; and (v) area?</i>	Examination of the unit in which the data are recorded, the range of characteristics related to the unit of analysis, and by establishing whether higher level groups (e.g. family) can be created by using smaller units (e.g. individual women or children).
<i>Can a database be linked to other Healthy Start databases or to other routinely collected databases?</i>	Examination of the presence/absence of unique identifiers across all Healthy Start databases. With respect to the link to routinely collected databases, a method of 'profiling' in which the possibility of using anonymised information from Healthy Start databases to depict a Healthy Start eligible individual in routine dataset was explored.
<i>Does this database contain appropriate variables that can serve as a proxy for: (i) demand for vouchers; (ii) demand for Healthy Start products under vouchers; (iii) entities that could be substitutes for Healthy Start products; (iv) entities that could be complements for Healthy Start products; (v) covariates such as income and distance to retailers?</i>	Examination of all the variables and their specifications in the databases. Demand variables need to be specified either in terms of quantity, expenditure, or decision to purchase or eat.
<i>Are there appropriate 'instruments' to permit econometric estimation?</i>	Examination of variables that might be related to voucher application but not with the choice of Healthy Start products. The long list of instruments is drawn up with reference to the review of economic literature conducted as part of this 'feasibility' study.

<p><i>For datasets, subject to further analysis (DB1 & DB2).....</i></p> <p><i>Are variables all accessible (i.e. have real values)?</i></p>	<p>Ran descriptive statistics for all variables</p>
<p><i>Is coding and distribution of variables consistent?</i></p>	<p>Conducted descriptive statistics of all the variables to check if:</p> <ul style="list-style-type: none"> • Missing data conventions are similar across variables? • Number of observations (including missing) across and within question blocks are consistent (N/B: the only exception may be where the variable in question is a follow-up question)
<p><i>Are the values of variables plausible?</i></p>	<p>Used descriptive statistics to check for:</p> <ul style="list-style-type: none"> • Labelling of categorical variables • Presence of unusual outliers in continuous variables
<p><i>Checking duplicates in the observations</i></p>	<p>All variables particularly with unique observations (e.g. postcodes vary by town of residence) were assessed to see if there were duplicates</p>

Appendix 32: Review of Healthy Start beneficiary/applicant database (DB1)

Review questions	Findings
<i>Does the number of observations contained in the dataset permit economic analysis with enough statistical power, permit sufficient stratifications and allow regression techniques to apply?</i>	The dataset provided had 856,490 ²⁹ observations - the entire population of applicants. As this is not a sample, the issue of statistical power is not an issue.
<i>Is there any missing value in the variables of interest (e.g. quantity of vouchers used, responses related to the use of vouchers)? If so, what is the extent of missing data? Are these data missing at random? Is there any scope for imputation?</i>	<ol style="list-style-type: none"> 1. There were no missing values for: vouchers, 'date of application was received'; 'has the applicant a partner?'; 'has the applicant a partner?' 2. 'ID of health professional' had the highest number of missing observations (98.7%)³⁰ while age of applicant and variables measuring applicants' receipt of benefits had the lowest (0.5%). 3. The minority of the variables had no missing observations (30%; n=7³¹). Of those with missing observations (70%, n=16), 20% (3 out of 16) were missing more than 50% of their responses.. 4. Observations that were missing were systematically different from those without missing observations. This pattern was consistent for all relevant variables. Appendix 39 shows the mechanism under which the missing data occurred and possibilities for replacement.
<i>Can the analysis be performed at (i) individual women level; (ii) individual child level; (iii) individual family level; (iv) individual retailer level; and (v) area level?</i>	<ol style="list-style-type: none"> 1. <u>Individual women level</u>: Yes, as the main unit of observations were the applicants 2. <u>Individual child level</u>: While the dataset we received did not include beneficiary data, this is available in the full DB1 dataset, therefore this should be possible in the future. 3. <u>Individual retailer level</u>: Yes, but only if DB1 is merged with DB2 as the latter has retailer specific data. 4. <u>Area level</u>: Yes. A successful linkage was made using the town of residence or applicant's postcode. Such analysis would benefit from derivation of important area level variables using postcode data e.g. deprivation indices and grid locations not available in DB1.

²⁹ The original number of observations is 1,203,190 covering data held from 2007 – 2011. The data investigation/analysis presented here, however, focused on post April 2008 because any questions on data prior to SERCO taking over in April 2008 could not be answered (we found, for example, an unusually high number of applications dated on the last date in March 2007) and hence the data integrity appeared better since April 2008. To allow easier interpretation, the analysis was restricted to 3 years (i.e. 1st April 2008-31st March 2011).

³⁰ The evaluation of the Healthy Start Pilot in Devon and Cornwall (Hills et al., 2006) clarified that only a signature and date were required of the health professionals signing the form and NOT their NMC PIN. This would explain the level of missing data.

³¹ These variables included: voucher recipients, number of vouchers received, number of vouchers used, use rate of vouchers, has applicant a carer, has applicant a partner, higher voucher value.

Review questions	Findings
<i>Can a database be linked to other Healthy Start database or to other routinely collected databases?</i>	There is the potential to merge this with DB2 using the following variables (postcode, and ID main common redeeming retailers). Data exploration relating to merging both DB1 and DB2 was conducted and found to be successful (see demonstration in Appendix 54). This data can be merged with any national dataset that contains postcodes.
<i>Does this database contain appropriate variables that can serve as a proxy for: (i) demand for vouchers; (ii) demand for Healthy Start products under vouchers; (iii) entities that could be substitutes for Healthy Start products; (iv) entities that could be complements for Healthy Start products; (v) covariates such as income and distance to retailers?</i>	The variables that can potentially be proxied are indicated below: (i) demand for vouchers: could use 'vouchers used or issued in 2008-2011' (ii) demand for Healthy Start products under vouchers: No such proxies could be identified (iv) Covariates such as income: limited to receipt or not of income support (v) Covariates such as distance to retailers: Could calculate this for a proportion ³² of beneficiaries based on grid references (y&x co-ordinates) given merging of both 'DB1' and 'DB2'

³² Some retailers only provide central or regional data (e.g. for Tesco) rather than store-based information at the point where vouchers are redeemed. In such cases a reliable indicator of distance could not be created

Appendix 33 Review of Healthy Start retailer database (DB2)

Review questions	Findings
<i>Does the number of observations contained in the dataset permit economic analysis with enough statistical power, permit sufficient stratifications and allow regression techniques to apply?</i>	The dataset has 16,153 observations that include the entire population available. This is unlikely to become a problem quickly. Increasing the number of stores accounted for by Tesco and Asda could increase the sample size but, beyond this nothing could be done,
<i>Is there any missing value in the variables of interest (e.g. quantity of vouchers used, responses related to the use of vouchers)? If so, what is the extent of missing data? Are these data missing at random? Is there any scope for imputation?</i>	<ol style="list-style-type: none"> 1. Almost half of the variables³³ (40%, n=10)) had no missing observations. Of those with missing observations (60%, n=15), only one had more than 50% of data missing Appendices 41 and 42 provides further details. 2. The variable indicating 'original reference of the suppliers' had highest number of missing observations (91.4%) while 'supplier is chain head?' had the lowest (0.1%). 3. The significance of the difference between those with and without missing observations were mixed.
<i>Can the analysis be performed at (i) individual women level; (ii) individual child level; (iii) individual family level; (iv) individual retailer level; and (v) area level?</i>	<ol style="list-style-type: none"> 1. <u>Individual women level</u>: Only feasible after merging with 'DB1' dataset. 2. <u>Individual child level</u>: Only feasible after merging with 'DB1' dataset that contains beneficiary data 3. <u>Individual retailer level</u>: Yes, as the main unit of observation is retailer 4. <u>Area level</u>: Yes, using the country, county, town of residence, postcode information.
<i>Can a database be linked to other Healthy Start database or to other routinely collected databases?</i>	Yes, this is possible with DB1 and any national dataset using postcode data.
<i>Does this database contain appropriate variables that can serve as a proxy for: (i) demand for vouchers; (ii) demand for Healthy Start products under vouchers; (iii) entities that could be substitutes for Healthy Start products; (iv) entities that could be complements for Healthy Start products; (v) covariates such as income and distance to retailers?</i>	<p>The variables that could be potentially proxied are indicated below (given merging of DB1&DB2):</p> <ol style="list-style-type: none"> (i) demand for vouchers: could use 'vouchers used or issued in 2008-2011' in 'DB1' (ii) Covariates such as income: could use receipt or not of income support in 'DB1' (iii) Covariates such as distance to retailers: could calculate using grid reference (y&x-coordinates)

³³ These variables included supplier status, country of residence, supplier category, opt-in to appear on website, data source, unique reference number, trading name, post of supplier, products sold, data declaration was signed

Appendix 34: Review of Healthy Start vitamins database (DB3)

Review questions	Findings
<i>Does the number of observations contained in the dataset permit economic analysis with enough statistical power, permit sufficient stratifications and allow regression techniques to apply?</i>	<p>This database covers England only. This database is expected to include all PCTs. The number of PCTs is greater than 152 in earlier returns (e.g. 2007-08). Further investigation with the DH revealed that this was likely to be due to different organisations within the same PCTs making claims (which were common at that time). From Dec 09, this has changed and now it is 152. The design of the database is comprehensive for England (i.e. is intended to include all PCTs) and the information can be analysed at PCT levels. Therefore, sample size calculation and corresponding statistical power are not an issue here (see Appendix 44; second column)</p>
<i>Is there any missing value in the variables of interest (e.g. quantity of vouchers used, responses related to the use of vouchers)? If so, what is the extent of missing data? Are these data missing at random? Is there any scope for imputation?</i>	<p>As the database is based on PCT claims on vitamins and not all PCTs have claimed for vitamins, this is likely to be an incomplete database. Further investigation with the DH revealed that this dataset is in constant update, encouraging PCTs to send their claims at their convenience. This has improved the completion rate slightly since Jun 10 (4 more PCTs making claims). A significant rise in the number of PCTs making claims was observed in June 2011 (38 more) (Appendix 45a). In addition, the reasons for a large number of outstanding returns may be various: e.g. PCTs may have thought that the hassle of making claims is not worth it; the claims are so small that the PCTs don't want to make it; lack of coordinator to liaise with DH. Qualitative data presented earlier indicates some potential reasons. If a PCT chooses not to claim for a period, the data is missing (Appendix 45b).</p> <p>Despite continuous update, a large amount of data is still missing (Appendix 44 shows the % missing range from 21 to 56%).</p> <p>Appendix 10 indicates that the update process has shown a small improvement overall, except for June 2011 when 38 more PCTs were recorded as claiming. These two randomly selected examples suggest that PCTs claims have not been consistent (i.e. they may claim only children's drops or both) and not in all quarters. The amount of claims is under £500 per quarter. No more information (other than non-missing values for the vitamins) was observed. (Appendix 45b).</p>
<i>Can the analysis be performed at (i) individual women level; (ii) individual child level; (iii) individual family level; (iv) individual retailer level; and (v) area level?</i>	<p>The data are organised in terms of quantities ("number of bottles") of vitamins. One bottle of children's drops is an 8-week supply, at 5 drops per day. One bottle of women's vitamins is also an 8-week supply and has 56 tablets in it. The dataset has separate columns for Total Costs (in GB Pounds). It is known, from the DH, that the manufacturers set the price of vitamins and DH Supply Chain may add some extras. Currently, the cost of £1.64 per bottle of children's drops and £0.83 per bottle of women's tablets is the rate at which the DH reimburses PCTs. The prices are adjusted every year – the ones listed are from Jan 2011. Therefore, the two Total Cost columns in the database are simply the number of bottles times the relevant unit cost as above.</p> <p>(i) These data cannot be used to analyse demand for vitamins at individual beneficiary level. (ii) No, because no individual is identified.</p>

	<p>(iii) No, because families cannot be identified</p> <p>(iv) The area (PCT) level variable, e.g. number of children's vitamin drops issued by PCT is an absolute value with little use. If this could be linked to number of beneficiary children within that PCT (no information at this end is held within this database) and this relative value (i.e. vitamins per child) could also be linked to DB1 (see linkage criteria below), some limited analysis around the demand for vitamins could be done. Appendix 46 provides sample returns from June 2011.</p>
<p><i>Can this database be linked to other Healthy Start databases to do a meaningful analysis?</i></p>	<p>No direct linkage is envisaged as there are no relevant common variables between the Vitamins claims database and other Healthy Start databases. The only common variable is the PCT. This may let us create a variable like "% vitamins claimed per child in a PCT" by linking the claims data to DB1 beneficiary data obtained from Management Reports. Very limited linkage at PCT level is envisaged. However, the extent of missing values in the vitamins claims data (see above) may undermine such an effort. There are only a few variables contained in the data (Appendix 47 and 48). The move to clinical commissioning groups presents more of a challenge given the lack of postcode data and suggests this analysis is unlikely to be useful given the changing face of the NHS.</p>
<p><i>Does this database contain appropriate variables that can serve as a proxy for: (i) demand for vouchers; (ii) demand for Healthy Start products under vouchers; (iii) entities that could be substitutes for Healthy Start products; (iv) entities that could be complements for Healthy Start products; (v) covariates such as income and distance to retailers?</i></p>	<p>The variables that can be potentially proxied are indicated below:</p> <p>(i) Demand for Healthy Start products: It is not clear whether 'no claims' by PCTs means 'no demand' for vitamins. However, comparing the reported figures with 'expected' number of vitamin bottles that should have been issued (estimates based on Serco management reports) suggest that the demand for vitamins is generally very low, between 2-9%. There is no other information in the database that can be used to corroborate this level of demand. No proxies for substitutes or complements exist in the database. Area (PCT) level demand can be estimated using this database and Serco. However, given no other information it would not be possible to explain any variation in such demand. (Appendices 47 and 48 show very limited number of variables. Also see linkage issue above)</p>

Appendix 35: Review of FDS international survey database (DB4, waves 1 and 2)

Review questions	Findings
<i>Does the number of observations contained in the dataset permit economic analysis with enough statistical power, permit sufficient stratifications and allow regression techniques to apply?</i>	<ol style="list-style-type: none"> 1. The sample size varies between 600 and 1,400 respondents. Respondents are Healthy Start voucher recipients. No justification is found in the documentation as to how the sample was drawn and whether the sample size offers enough statistical power. 2. As the sample was stratified with equal size with no indication of random draw, design effect and selection biases appear to be inevitable. Limited stratifications are possible within the current sample size (Appendices 49 and 50). 3. On the basis of Appendix 49, some kinds of regression analysis seem feasible (e.g. to ascertain whether recipient characteristic predicts their response on which product they would exchange vouchers for). Given the limited number of such characteristics (see section on covariates below) and their distribution, it would be very limited (Appendix 51). In addition, the sample design issue makes it hard to generalise the findings back to the Healthy Start population, which currently stands at about 500,000 recipients.
<i>Is there any missing value in the variables of interest (e.g. quantity of vouchers used, responses related to the use of vouchers)? If so, what is the extent of missing data? Are these data missing at random? Is there any scope for imputation?</i>	The baseline and wave 1 databases are coded and labelled appropriately. There appear to be no issues with missing data (see frequency runs with selected key variables in Appendices 49 and 50).
<i>Can the analysis be performed at (i) individual women level; (ii) individual child level; (iii) individual family level; (iv) individual retailer level; and (v) area level?</i>	<p>This dataset holds information for each respondent, meaning that the unit of analysis is “individual”. There is no variable that allows higher level (e.g. household) aggregation for a meaningful regression analysis. Limited regression analysis to understand who is likely to use the vouchers to buy certain products (e.g. fresh fruits and vegetables) can be done but given very limited number of background variables, it is not likely to be informative (see Appendix 51 for demonstration purpose only – the figures not to be quoted).</p> <p>Note that some variables, such as use of vitamins, in this database cannot be used as almost all respondents said they did not use the voucher for vitamins.</p>
<i>Can this database be linked to other Healthy Start databases to do a meaningful analysis?</i>	The database has unique IDs for each respondent but this ID is different from other Healthy Start databases (e.g. DB1). There is no possibility for any linkage of this database with other Healthy Start databases or national databases.
<i>Does this database contain appropriate variables that can serve as a proxy for: (i) demand for vouchers; (ii) demand for Healthy Start products under</i>	<p>There are two sets of questions in Baseline and Wave1 that may proxy demand for Healthy Start vouchers and demand for Healthy Start products and Non Healthy Start products, for example:</p> <p>There is a question asking the type of vouchers they receive: “Can I start</p>

<p><i>vouchers; (iii) entities that could be substitutes for Healthy Start products; (iv) entities that could be complements for Healthy Start products; (v) covariates such as income and distance to retailers?</i></p>	<p>off by asking what sort of vouchers you get?" with following options available: Vouchers for pregnant women; Vouchers for a baby/babies under the age of one; Vouchers for a child/children over one and under four years old; Both child under 1 and over 1; Pregnant and baby under 1; Pregnant, baby under 1 and children over 1; None of these; Don't know. (Appendix 52)</p> <p>There is another question: "And now thinking about when you use the vouchers, what do you mainly use them for?" The respondents are then asked a number of options such as Cows' milk; Infant formula milk; Fresh fruit and vegetables; Vitamin tablets; Children's vitamin drops; Juice; Baby food / tins / jars of baby food; Various food e.g. yoghurt / bread / soup etc.; Nappies / wipes; Baby products. However, the response to Non-Healthy Start product is almost always a 'No'. (Appendix 52)</p> <p>Note that the responses in this database are self-reports which may have problems with recall. However, provided there are reasonable control variables (see below on covariates section), this could be used to analyse the demand for Healthy Start products. This dataset cannot be used to analyse the demand for non-Healthy Start products or to answer the question about substitutability and complementarity.</p> <p>Although the sample could be disaggregated by type of voucher the respondents receive, this is not good enough to estimate the demand for vouchers itself because we would also need those who were eligible but did not receive the voucher. This dataset does not collect data on those.</p> <p>Only four covariates are collected: gender, ethnic background, age band and current area of residence (Appendix 53). The four variables are important to explain the variation in demand for Healthy Start products but may not be enough.</p>
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Appendix 36: Descriptive statistics of vouchers (n=856,490)

Variables	Obs.	Mean(SD) / %	Median(IQR)	Min(n)	Max(n)
<i>Voucher(s) Recipients?</i>					
No	309,809	36.17			
Yes	546,681	63.83			
If yes ³⁴ ,					
<i>Number received</i>	546,681	212.55 (258.4)	127 (48, 257)	1	4326 (1)
<i>Number used</i>	546,681	185.30 (233.9)	107 (38, 20)	0 (5968)	4044 (1)
<i>Use rate (%)</i>	546,681	84.21 ³⁵ (17.2)	89.4 (79.2, 95.3)	0 (4478)	100 (65680)

³⁴ These are the people that the remaining analysis focuses on. As the aim of the exploratory analysis presented later is not to determine whether those who received are any different from those who did not receive vouchers (something that is given per eligibility criteria set by government).

³⁵ The accuracy of data on redeemed vouchers can be challenged because a retailer can take up to 6 months from the point the HS customer redeems the voucher at the store to claim the money. Therefore, we explored the potential impact on the use rate by calculating use rate for a period where it is certain all data on redemption of vouchers had come through, at least 6 months prior to data extraction date (i.e. 1st April 2008-6th December 2010). The use for this period was comparable (86%).

Appendix 37: Description of sample (those who received voucher(s))

Variables	Sample (n=546,681)				
	Obs.	Mean(SD) / %	Median (IQR)	Min (n)	max
Age of applicant	543,817	26.53(7.21)	25(21,31)	0(73)	107
<i>missing</i>	2864	0.52			
Does applicant receive income support?					
No	230,642	42.19			
Yes	313,230	57.30			
<i>Missing (null)</i>	2,827	0.52			
Does applicant receive job seekers allowance?					
No	438,067	80.19			
Yes	105,484	19.30			
<i>Missing (null)</i>	2,830	0.52			
Does applicant receive child tax credit?					
No	211,731	38.73			
Yes	332,120	60.75			
<i>Missing (null)</i>	2,830	0.52			
Does applicant receive work tax credit?					
No	540,927	98.95			
Yes	2,924	0.53			
<i>Missing (null)</i>	2,830	0.52			
Applicant receives a benefit?					
No	18,803	3.44			
Yes	525,048	96.04			
<i>Missing (null)</i>	2,830	0.52			
Is applicant pregnant?					
No	244,102	44.65			
Yes	299,735	54.83			
<i>Missing (null)</i>	2,844	0.52			
Number of children of applicant	359,987	1.31(0.61)	1(1,2)	0(5143)	8
<i>Missing (.)</i>	186,694	34.15			
Age of children of the applicant					
Under 1 year/unborn	94,475	17.28			
1 year	69,886	12.78			
2 years	67,836	12.41			
3 years	65,841	12.04			
4 years	42,522	7.78			
<i>Missing</i>	206,121	37.70			
Has the applicant a carer?					
No	29,015	5.31			
Yes	517,666	94.69			
Has the applicant a partner?					
No	434,062	79.40			
Yes	112,619	20.60			

Higher voucher value ³⁶ ?					
No	154,999	28.35			
Yes	391,682	71.65			

³⁶ This variable is specified as an external shock indicating whether voucher value is high or not. Given our study period, voucher value has changed only once in April 2009 (from £3.00 to £3.10). Thus the variable indicating high voucher value takes the value 1 if date of application was from 1 April to date and 0 otherwise.

Appendix 38: Other descriptive statistics

The following presents description of variables that have too many unique observations to warrant any meaningful description.

1. Date application was received: This variable indicates dates application was received covering 1st April 2008 to 31st March 2011. No missing observations.
2. Town of residence of applicant: The data covers towns in the UK. Missing observations were 56.6% (n=293082) consisting of 99% (n=290,238 covering '.' values) and 1% (n=2844 covering 'NULL' values).
3. Postcode of signatory health professional: The data covers the post code of signatory health professional. Missing observations were 95.9% (n=517407) consisting of 99.5% (n=514,562 covering '.' values) and 0.5% (n=2845 covering 'NULL' values).
4. ID of health professional: The data covers the unique ID of signatory health professional. Missing observations were 98.7 % (n=539,447) consisting of 99.5.2% (n=536,602 covering '.' values) and 0.5% (n=2845 covering 'NULL' values).
5. Main common redeeming retailer ID: The data covers the unique ID of main common redeeming retailers. Missing observations were 0.8% (n=4544). Missing observations were indicated by '.'
6. Main common redeeming retailer postcode: The data covers the postcode of main common redeeming retailers. Missing observations were 0.8% (n=4544). Missing observations were indicated by 'NULL'.
7. Post code of applicants: The data covers the post code of applicants. Missing observations were 2.5% (n=13405) consisting of 78.9% (n=10,575 covering '.' values) and 21.1% (n=2,830; covering 'NULL' values).

Appendix 39: Missing data (DB1)

This analysis was to check: (a) whether the missing data occurred at random or not; and (b) possible ways to replace the missing values.

Point 'a' was assessed using statistical tests of association (ttest) to check if the observations with missing values were systematically different from those without missing values. Hence the values of the 'non-use rate' were compared. A significant difference (via p value) between those with missing observations and those without indicated missing data was not at random and vice versa. Non-use rate was used because it is the dependent variable of future regression model (exploratory analysis).

If the pattern of missing data did not occur completely at random (i.e. use rate is significantly associated with item non-response for independent variable(s)):

- Regression-based imputation method was suggested used to replace missing values of continuous variables and a dummy variable specifying item-non response added.
- For the categorical variables, missing values were treated as separate categories in order to observe potentially informative non-responses (indicator method).
- For postcode data, imputation based on matching postcodes via national postcode data (accessible through UK borders; www.edina.co.uk)

Table: Findings on missing data ('.'/'null')

Variable	Missing data at random or not (p values ^a)	Method for accounting for missing data(Morris, Sutton, & Gravelle, 2005; Petrou & Kupek, 2008)
Age of applicant	***	regression-based imputation
Does applicant receive income support?	***	Indicator method
Does applicant receive job seekers allowance?	***	Indicator method
Does applicant receive child tax credit?	***	Indicator method
Does applicant receive work tax credit?	***	Indicator method
Does applicant receive no benefit?	***	Indicator method
Is applicant pregnant?	***	Indicator method
Number of children of applicant	***	regression-based imputation
Postcode of applicants	***	Imputation based on the national postcode data via UK borders
Postcode of main common redeeming retailer	***	Imputation based on the national postcode data via UK borders
ID of main common redeeming retailer	***	Indicator method
ID of health professional	***	Indicator method
Postcode of health professional	***	Imputation based on the national postcode data via UK borders
Town of residence of applicant	***	Indicator method

^aSignificance level of 1%(***), 5%(**), 10%(*)

Appendix 40: Understanding the use rate of vouchers (using DB1)

First, the reduced multinomial model (model 1) is presented followed by the Tobit model (model 2).

Estimation of use rate of vouchers using multinomial model

Explanatory variables	Dependent variable	
	Partial use rate of vouchers (more than 0% use rate but less than 100%) ^a	Full use rate of vouchers (100%) ^a
	<i>Coefficient^b</i>	<i>Coefficient^b</i>
Age of applicant	0.003	0.034***
High voucher value ^c	-0.218***	-0.460***
Have a partner	0.003	0.258***
Have a carer	0.070	0.225***
Receives income support	0.270***	-0.550**
Age of children of applicant ^d		
1 year	-0.258**	-0.268**
2 years	-0.175*	0.000
3 years	-0.658***	0.037
4 years	-0.340**	-0.360**
Number of children of applicant ^{37e}		
2	1.047***	0.454***
3 - 5	2.886***	1.652**

^aReference category: Zero use rate; ^bSignificance level of 1%(***), 5%(**), 10%(*); ^cReference category: low voucher value; ^dReference category: under 1 year/unborn; ^eReference category: unborn/1 child

³⁷ Number of children was converted into a categorical data to improve fitness of models

Estimation of use rate of vouchers using Tobit model

Explanatory variables	Dependent variable
	Use rate of vouchers
	<i>Coefficient^b</i>
Age of applicant	0.269***
High voucher value ^c	-5.548***
Have a partner	2.064***
Have a carer	1.819***
Receives work tax credit	5.462***
Received job seekers allowance	-0.566***
Receives child tax credit	0.993***
Receives income support	-2.128***
Applicant is pregnant	1.471***
Age of children of applicant ^d	
1 year	0.849***
2 years	2.029***
3 years	3.199***
4 years	1.887***
Number of children of applicant ^e	
2	0.589***
3 - 5	1.445***

^aReference category: Zero use rate; ^bSignificance level of 1%(***), 5%(**), 10%(*); ^cReference category: low voucher value; ^dReference category: under 1 year/unborn; ^eReference category: unborn/1 child

Appendix 41: Descriptive statistics of variables in Healthy Start retailer database (missing observations are indicated) n= 16153

Variables	Obs.	%/Mean(SD)
<i>Supplier status</i>		
Supplier successfully registered	12,246	75.81
Supplier's next claim to be checked	2	0.01
Invalid bank details	5	0.03
Suspect change of details	1	0.01
Supplier suspended by CFSMS	1	0.01
Supplier lapsed	2,656	16.44
Supplier ceased trading	1,242	7.69
<i>Agent handled by coupon clearing house?</i>		
No	16,014	99.14
Yes	128	0.79
Missing observations	11	0.07
<i>Country of residence</i>		
England	12,836	79.47
Northern Ireland	619	3.83
Scotland	1,775	10.99
Wales	923	5.71
<i>Supplier category</i>		
Independent chemist	1,137	7.04
Food coop/box scheme	278	1.72
Multiple chemist	210	1.30
Independent retailer	10,888	67.41
Market trader	253	1.57
Milk rounds man	2,048	12.68
Multiple retailer(franchised)	556	3.44
Multiple retailer(non-franchised)	654	4.05
Wholesaler	129	0.80
<i>Number of outlets owned by supplier</i>	12789	2.67(38.15)
Missing observations	3364	20.83
<i>Opt-in to appear on website</i>		
No	3,654	22.62
Yes	12,499	77.38
<i>Business recently taken over</i>		
No	13,504	83.60
Yes	2,516	15.58
Missing observations	133	0.82
<i>Data source</i>		
Accor-previous contractor	5,876	36.38
Helpline	1,358	8.41
MRM	7,722	47.81
Trade	1	0.01
Internet	1,196	7.40
<i>Number of tills</i>	10503	1.55(1.39)
Missing observations	5650	34.98
<i>Grid reference (x-coordinate)</i>	16031	409229.6(113919)
Missing observations	122	0.76

Variables	Obs.	%/Mean(SD)
<i>Grid reference (y-coordinate)</i>	16031	345942.2(176717.2)
Missing observations	122	0.76
<i>Supplier is chain head office</i>		
No	16,061	99.43
Yes	71	0.44
Missing observations	21	0.13

Appendix 42: Other descriptive statistics

The following presents description of variables that have too many unique observations to warrant meaningful description.

1. Unique reference number: This variable that specifies the unique reference number. It has no missing observations.
2. Trading name: This variable denotes names of suppliers. It has no missing observations.
3. Postcode: The postcode of suppliers and has no missing observations.
4. Products sold: This variable measure the healthy start products sold by the suppliers. No missing observation was found.
5. Sign. date: This variable measures the date of signing of declaration and has no missing observations. The issue is that it is not clear what declaration is that; and there are also some dates i.e. 24/06/5200; 24/10/1906; 25/07/2111. The actual date range is between 2006 and 2011.
6. Applications previously denied or disqualified: The 2 variables indicating whether an application has been denied, or disqualified has all their observations denoted as zero.
7. Town and city of residence: This variable measures the town/city of residence of the suppliers. This variable has 29 (0.2%) missing observations.
8. Town of residence: This variable measures the town of residence of the suppliers. This variable appears to measure the same thing as the previous one. The correlation between the two variables is 0.913. This variable has 110 (0.7%) missing observations.
9. County of residence: This variable measures the county of residence of the suppliers. This variable has 3962 (24.6%) missing observations.
10. County of residence (2): This variable contains the county of residence of the suppliers. This variable appears to measure the same thing as the 'county of residence (1)'. The correlation between the two variables is 0.974. It has 4726 (29.3%) missing observations.
11. Postcode: This variable contains the postcode of the suppliers. This variable has 7 (0.04%) missing observations.
12. Supplier's payment name: This variable measures the payment name of the suppliers and it has 45 (0.2%) missing observations.
13. Original reference: This measures the original reference number of the suppliers. It has 91.35% missing observations.

Appendix 43: Missing data (findings)

Following a similar approach in Appendix 39, we present the findings on missing data. The difference here though is that 'supplier status' was the variable against which non- item response was compared.

Findings on missing data ('./' 'null')

Variable	Missing data at random or not (p values ^a)	Method for accounting for missing data (Petrou & Kupek, 2008; Morris et al. 2005)
Town and city of residence	ns	Indicator method ^b
Town of residence	ns	Indicator method ^b
County of residence	ns	Indicator method ^b
County of residence(2)	ns	Indicator method ^b
Postcode of supplier	ns	Imputation via matching postcodes ^b
Original reference	***	Indicator method ^b
Is supplier chain head office	***	Indicator method ^b
Supplier name	ns	Indicator method ^b
Number of outlets	ns	Regression-based imputation ^b
Business recently over	ns	Indicator method ^b
Number of tills	***	Regression-based imputation ^b
Grid reference (x-coordinate)	***	Indicator method
Grid reference (y-coordinate)	***	Indicator method
Town of residence of applicant	***	Indicator method

^aSignificance level of 1%(***), 5%(**), 10%(*)

^bThe justification for replacing missing here is not to avoid biased estimates but rather for maximum use of the sample.

Appendix 44: Summary information contained in the DB3 database*

Quarter	Total number of PCT's in the database	Number of PCT's who have sent a return	Number of PCTs who did not claim	% of PCTs who did not claim
Jun-07	171	76	95	55.56%
Sep-07	170	79	91	53.53%
Dec-07	160	77	83	51.88%
Mar-08	162	79	83	51.23%
Jun-08	161	77	84	52.17%
Sep-08	160	96	64	40.00%
Dec-08	161	70	91	56.52%
Mar-09	161	74	87	54.04%
Jun-09	160	80	80	50.00%
Sep-09	160	89	71	44.38%
Dec-09	151	97	54	35.76%
Mar-10	154	112	42	27.27%
Jun-10	154	115	39	25.32%
Sep-10	150	118	32	21.33%
Dec-10	153	119	34	22.22%
Mar-11	153	104	49	32.03%
Jun-11	152	82	70	46.05%

* Database obtained in Aug 2011.

Appendix 45A: Difference between original* and updated databases (DB3)

Quarter	As of Aug 2011	As of April 2012**	Change
Jun-07	76	76	0
Sep-07	79	79	0
Dec-07	77	79	2
Mar-08	79	82	3
Jun-08	77	78	1
Sep-08	96	96	0
Dec-08	70	70	0
Mar-09	74	74	0
Jun-09	80	81	1
Sep-09	89	89	0
Dec-09	97	97	0
Mar-10	112	113	1
Jun-10	115	119	4
Sep-10	118	122	4
Dec-10	119	123	4
Mar-11	104	113	9
Jun-11	82	120	38

* Original database refers to the one sent to the Research Team in Aug 2011

** These figures are based on summary statistics (not database) sent to the Research Team in Apr 2012.

Appendix 45B: Gaps in claims data in two PCTs selected at random*

Quarter	Luton Primary Care Trust (East of England)		Enfield Primary Care Trust (London)	
	Total claim value	Claimed for women's tablets and/or children's drops	Total claim value	Claimed for women's tablets and/or children's drops
Jun-07	£0.00		£0.00	
Sep-07	£0.00		£113.06	Both
Dec-07	£0.00		£200.20	children
Mar-08	£0.00		£302.68	children
Jun-08	£0.00		£199.64	children
Sep-08	£0.00		£210.91	children
Dec-08	£0.00		£215.74	children
Mar-09	£0.00		£154.56	children
Jun-09	£0.00		£178.71	children
Sep-09	£0.00		£151.34	children
Dec-09	£0.00		£207.69	children
Mar-10	£334.25	Both	£455.63	children
Jun-10	£283.90	Both	£524.57	children
Sep-10	£387.91	Both	£0.00	children
Dec-10	£348.57	Both	£0.00	children
Mar-11	£312.22	Both	£0.00	children
Jun-11	£340.91	Both	£0.00	children

* Based on the database obtained in Aug 2011.

Appendix 46: Magnitude of claims over time*

Quarter	Number of PCTs who claimed	Children's drops claimed for	Women's tablets claimed for
Jun-07	76	2679	60
Sep-07	79	4716	310
Dec-07	79	5721	331
Mar-08	82	7567	418
Jun-08	78	4471	492
Sep-08	96	3919	606
Dec-08	70	4764	930
Mar-09	74	5686	800
Jun-09	81	6121	954
Sep-09	89	5563	1955
Dec-09	97	9681	2467
Mar-10	113	15436	6043
Jun-10	119	15935	5893
Sep-10	122	16605	7330
Dec-10	123	15594	7475
Mar-11	113	14466	7403
Jun-11	120	17141	7898

* Based on the summary statistics made available to the Research Team in Aug 2011 based on updated database as of Apr 2012.

Appendix 47: A sample of the vitamins claims database*

Trust	Region	PCT Codes	HS Children's Vitamin Drops - Quantity Issued	Total cost of Drops	HS Vitamin Tablets for Women - Quantity Issued	Total cost of Tablets	TOTAL COST
Anglian Community Enterprise (North East Essex)	East of England	5PW	76	£124.64	23	£19.09	£143.73
Ashton, Leigh & Wigan PCT (Bridgewater Community Healthcare NHS Trust)	North West	5HG		£0.00		£0.00	£0.00
Barking & Dagenham PCT (ONEL)	London	5C2	234	£383.76	70	£58.10	£441.86
Barnet PCT	London	5A9		£0.00		£0.00	£0.00
Bassetlaw PCT	East Midlands	5ET	32	£52.48	18	£14.94	£67.42
Bath & NE Somerset PCT	South West	5FL		£0.00		£0.00	£0.00
Berkshire East PCT	South East	5QG		£0.00		£0.00	£0.00
Berkshire West PCT	South East	5QF		£0.00		£0.00	£0.00
Birmingham Community Healthcare (South Birmingham)	West Midlands	5M1	337	£552.68	75	£62.25	£614.93
Birmingham East & North PCT	West Midlands	5PG	260	£426.40	87	£72.21	£498.61
Blackpool PCT	North West	5HP		£0.00		£0.00	£0.00
Bolton PCT	North West	5HQ	72	£118.08	46	£38.18	£156.26
Bournemouth & Poole PCT	South West	5QN	65	£106.60	46	£38.18	£144.78
Bradford & Airedale Teaching PCT	Yorkshire and The Humber	5NY		£0.00		£0.00	£0.00
Brent (Ealing Hospital NHS Trust)	London	5K5		£0.00		£0.00	£0.00

*Based on the database obtained in Aug 2011.

Appendix 48: Comparative estimates of demand for children's vitamins drops on a sample from East of England*

Name of the PCT	Eligible number of beneficiaries (from Vertex Management Reports)	No. of bottles issued	Expected No. of bottles if 100% eligible beneficiaries took vitamins	Uptake rate	Expected number of bottles if 80% eligible beneficiaries took vitamins	Uptake rate
Cambridgeshire	2458	59	3687	1.60%	2949.6	2.00%
Luton	1962	217	2943	7.37%	2354.4	9.22%
Mid Essex	1575	41	2362.5	1.74%	1890	2.17%
North East Essex	2136	44	3204	1.37%	2563.2	1.72%
Peterborough	1836	192	2754	6.97%	2203.2	8.71%
South East Essex	2071	153	3106.5	4.93%	2485.2	6.16%
South West Essex	3026	73	4539	1.61%	3631.2	2.01%
Suffolk	2786	103	4179	2.46%	3343.2	3.08%
West Essex	1430	73	2145	3.40%	1716	4.25%

* The last 4 columns in the Table are estimated by the Research Team.

Appendix 49: Self-reported usage of vouchers by age and residence (Baseline, n=600)

Characteristics of the respondents	Thinking about when you use the vouchers, what do you mainly use them for: fresh fruits and vegetables?					
	<i>No</i>	<i>%</i>	<i>Yes</i>	<i>%</i>	<i>Total</i>	<i>%</i>
<i>Age group</i>						
<16	13	52	12	48	25	100
16-17	70	46.05	82	53.95	152	100
18-24	59	54.63	49	45.37	108	100
25-34	119	47.22	133	52.78	252	100
35-44	26	50	26	50	52	100
45-54	2	40	3	60	5	100
Don't know	2	33.33	4	66.67	6	100
Total	291	48.5	309	51.5	600	100
<i>Current residence</i>						
Village	26.00	32.91	53	67.09	79.00	100.00
Town	162.00	49.69	164	50.31	326.00	100.00
Outside a town	38.00	51.35	36	48.65	74.00	100.00
City	65.00	53.72	56	46.28	121.00	100.00
Total	291.00	48.50	309	51.50	600.00	100.00

Appendix 50: Distribution of responses on main usage and background variables

Variables (selected)	Baseline (n=600)		Wave 1 (n=1400)	
	N	%	N	%
<i>Main usage of vouchers</i>				
Cows' milk				
No	353	58.83	759	54.21
Yes	247	41.17	641	45.79
Infant formula				
No	251	41.83	643	45.93
Yes	349	58.17	757	54.07
Fresh fruits and vegetables				
No	291	48.5	565	40.36
Yes	309	51.5	835	59.64
<i>Gender of the respondents (recipients)</i>				
Male	11	1.83	23	1.64
Female	589	98.17	1377	98.36
<i>Ethnicity of the respondents (recipients)</i>				
White: British	508	84.67	1,107	79.07
White: Irish	4	0.67	15	1.07
White: Any other White background	5	0.83	49	3.5
Mixed: White and Black Caribbean	14	2.33	26	1.86
Mixed: White and Black African	4	0.67	11	0.79
Mixed: White and Asian	2	0.33	3	0.21
Mixed: Any other Mixed background	1	0.17	4	0.29
Asian or Asian British: Indian	3	0.5	6	0.43
Asian or Asian British: Pakistani	15	2.5	26	1.86
Asian or Asian British: Bangladeshi	8	1.33	11	0.79
Asian or Asian British: Any other Asian	1	0.17	14	1
Black or Black British: Caribbean	9	1.5	28	2
Black or Black British: African	6	1	59	4.21
Black or Black British: Any other Black	3	0.5	4	0.29
Other	8	1.33	20	1.43
Don't know	9	1.5	17	1.21

Appendix 51: Exploring possibility for a regression analysis at individual level (Wave 1, n=1400)

Second wave: Logistic regression; dependent variable: whether used vouchers to buy fresh fruits and vegetables

Number of obs = 1400

LR chi2(11) = 19.41; Prob > chi2 = 0.0541; Log likelihood = -934.50031; Pseudo R2 = 0.0103

```
-----
q2704 |   Coef.   Std. Err.      z    P>|z|   [95% Conf. Interval]
-----+-----
      _lq44_2 | -.7627235   .492498   -1.55   0.121   -1.728002   .2025548
      _lq44_3 | -.7928055   .4881628   -1.62   0.104   -1.749587   .1639759
      _lq44_4 | -.3723373   .4931077   -0.76   0.450   -1.338811   .5941361
      _lq44_5 | -.4765754   .5082212   -0.94   0.348   -1.472671   .5195199
      _lq44_6 | .0067294   .7093354    0.01   0.992   -1.383542   1.397001
      _lq44_7 | -1.164739   1.49757   -0.78   0.437   -4.099923   1.770445
      _lq44_8 | -.5085899   .8576155   -0.59   0.553   -2.189485   1.172306
      _lq45_2 | -.1596078   .1729118   -0.92   0.356   -.4985087   .1792932
      _lq45_3 | .1255948   .2278518    0.55   0.581   -.3209864   .5721761
      _lq45_4 | .0489994   .1967843    0.25   0.803   -.3366907   .4346895
      _lq45_5 | -.1996817   .5126294   -0.39   0.697   -1.204417   .8050535
      _cons | 1.077442   .4970119    2.17   0.030   .1033162   2.051567
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Example only
- Not for
citation

Appendix 52: Baseline and Wave 1 questions on vouchers and voucher usage

Q.A1 Can I start off by asking what sort of vouchers you get?
Vouchers for pregnant women
Vouchers for a baby/babies under the age of one
Vouchers for a child/children over one and under four years old
Both child under 1 and over 1
Pregnant and baby under 1
Pregnant, baby under 1 and children over 1
None of these
Don't know

Q.24 And now thinking about when you use the vouchers, what do you mainly use them for?
Cows' milk
Infant formula milk (labelled as suitable from birth)
Follow on formula (labelled as suitable for children over 6 months)
Fresh fruit and vegetables
Vitamin tablets
Children's vitamin drops
Juice
Baby food / tins / jars of baby food
Various food e.g. yoghurt / bread / soup etc.
Nappies / wipes
Baby products
Other answers
Nothing in particular
Don't know/ no comment

Appendix 53: Covariates collected in the Baseline and Wave 1

GENDER: Male/Female

Q.41 How would you describe your ethnic background?

White: British
White: Irish
White: Any other White background
Mixed: White and Black Caribbean
Mixed: White and Black African
Mixed: White and Asian
Mixed: Any other Mixed background
Asian or Asian British: Indian
Asian or Asian British: Pakistani
Asian or Asian British: Bangladeshi
Asian or Asian British: Any other Asian
Black or Black British: Caribbean
Black or Black British: African
Black or Black British: Any other Black
Other
Don't know

Q.42 Which of the following age groups do you fall into?

<16
16-17
18-24
25-34
35-44
45-54
Don't know

Q.43 Would you say you live in a

Village
Town
Outside a town
City

Appendix 54: Investigation of possible merging of DB1 and DB2 databases

The objective of this investigation was to find out if it is possible to merge DB1 and DB2 databases, using variables common to both databases. Merging both databases would increase the potential number of variables that can explain the impact, and use of vouchers. Since the variables in DB2 (listed in Appendices 41 and 42) would be added to DB1. However, for the 30% of applicants in DB1 who redeemed vouchers at Tesco and Asda, the importance of including variables from DB2 would be limited because their values for almost all the additional variables except for, say, supplier category, would be 'incorrectly' the same. The findings are below:

1. Postcode: The variable, main common redeeming retailer postcode (maincommonredeemingretailerp_cod) in DB1 matches with variable, postcode (postcode – store address) in DB2
2. Unique number: The variable, main common redeeming retailer ID (maincommonredeemingretailerid) in DB1 matches with variable, urn (unique reference number) in DB2

Findings

The following are the findings of successfully merging of DB1 and DB2 via 'unique number' as an exemplar (the whole sample was used for the merging; $n=856,490$)³⁸. 61.6% ($n=542,133$) of the observations had data for both DB1 and DB2. As expected, 37% ($n=314,357$) of observations have no values for DB2 variables as they come from only DB1. This is because DB1 has an equivalent number of missing values on retailer id (variable used for merging). Notably, only about 4000 of these observations were given at least a voucher therefore any potential analysis using HS recipients may not be significantly affected.

0.7% ($n=5,827$) of the observations in the merged dataset comes only from DB2. This is because these observations (suppliers) have not been in the Vertex as Vertex asks for "most common retailer" and they were not possibly mentioned because they are not the most common suppliers of the respondents in Vertex. These can be deleted from the merged dataset prior to any analysis.

A number of checks conducted to assess the integrity of the resultant merged dataset, further corroborated the success of the merging:

1. Do sample size match? As ideally we would expect the max sample size to be 856,490, which is the total observations in Vertex, given that MRM is smaller ($n=16153$). If so, why do we have the merged dataset having total observations of 862,317. The difference is due to the extra observations in MRM ($n=5,827$) that are not in Vertex
2. Are the distributions of variables in the individual datasets similar to that in the merged dataset? Checks conducted on the variables showed similar distributions.

³⁸ This was chosen because it is by default relatively more unique than postcodes (as one or more retailers can be located at the same postcode).

Appendix 55: Presence of individual and area-level identifiers on Healthy Start scheme in national databases

Name of Dataset	Year	Individual-level identifiers	Area-level identifiers	Area-level identifiers available?	'Questions on Healthy Start?
British Household Panel Survey	2007-2008	No	postcode	Postcodes are not available. The Secure Data Service Access version of BHPS has National Grid Ref available , which can be converted into postcode .Available after application and approval process	no
	2008-2009		postcode		no
Expenditure and Food Survey (now called Living Costs and Food Survey)	2007	No	address Local authority code Government office region	No, but the Secure Data Service Access version has 'encrypted' postcodes .Available after application and approval process (same as the BHPS)	no
	2008		Area Local authority code Government office region	No No Yes The Secure Data Service Access version has 'encrypted' postcodes. Available after application and approval process (same as the BHPS)	no
	2009	No	Area	no	No
Families and Children Study	2007-2008	No	No	no	No
	2008-2009	No	No	no	No
Family Resources Survey	2007-2008	No	Area no	no	No
	2008-2009	No	Area no	No	No
Health Survey for England	2007	no	IMD 2004 postcode Government office region	yes no, but available after application yes	No
	2008	no	IMD2004	yes	Yes ¹

Name of Dataset	Year	Individual-level identifiers	Area-level identifiers	Area-level identifiers available?	'Questions on Healthy Start?
			postcode Government office region	no, but available after application yes	
	2009	no	IMD2004 postcode Government office region	yes (in quantiles) no, but available after application yes	Yes ¹
National Evaluation of the New Deal for Communities Programme: Household Survey Data	2008	no	Region NDC area Postcode	yes yes	No
Scottish Health Survey	2008	no	Address	No	yes ¹
	2009	no	Address	No	yes ¹
Continuous Household Survey	2007-2008	no	No	No	No
	2008-2009	no	No	No	No
	2009-2010	no	No	No	No
Infant Feeding Survey*	2010	no	Country of residence	Not available	Yes
National Diet and Nutrition Survey	2008-2009	no	Primary Sampling Unit (PSU)** Postcode	yes	yes
	2009-2010			Only address number available	

IMD: Index of multiple deprivation *: As data and questionnaires from the IFS are still not available to us, the responses in this row will need updating in the future

¹ "At present, are you taking any folic acid supplements such as Solgar folic acid, Pregnacare tablets, Sanatogen Pronatal, or Healthy Start, to supplement your diet or improve your health?".

Appendix 56: Questions relevant to Healthy Start scheme in the Infant Feeding Survey (2010)

Variables	Alternative specifications
Fruits	<p>1. <u>Has mother of newly born baby used Healthy Start to buy fruits since birth of child</u> <i>(Question directed to only Healthy Start eligibles: What did you spend your Healthy Start vouchers on? Possible responses: Infant formula; Cows' milk; Fresh fruit; Fresh vegetables)</i></p> <p>2. <u>Baby ever consumed fruits?(only at stage 2&3)</u></p> <p>a. <i>(Question: What was the first solid food given to your baby? Possible responses: Readymade baby food; Homemade foods; Rusk; Baby rice; Fruit; Vegetables ; Any other food (for example, yoghurt, fromage frais or breakfast cereal)</i></p> <p>b. <i>(Question: What sort of solid foods has your baby ever had? Possible responses: Readymade baby food; Homemade foods; Rusk; Baby rice; Fruit; Vegetables ; Any other food (for example, yoghurt, fromage frais or breakfast cereal)</i></p> <p>c. <i>(Question: What sort of solid foods did your baby eat yesterday? Possible responses: Readymade baby food; Homemade foods; Rusk; Baby rice; Fruit; Vegetables ; Any other food (for example, yoghurt, fromage frais or breakfast cereal)</i></p> <p><u>Frequency of fruits consumption by baby (at Stage 3)</u> <i>(Question; And how often do you usually give your baby these particular TYPES of solid foods. Solid foods include separate category for fruits. Possible measures of frequency were: >1 per day, 1 per day, =/>3 per day, 1 or 2 per day, <1 per day, never)</i></p>
Vegetables	<p>1. <u>Has mother of newly born baby used Healthy Start to buy vegetables since birth of child</u> <i>(Question directed to only Healthy Start eligibles: What did you spend your Healthy Start vouchers on? Possible responses: Infant formula; Cows' milk; Fresh fruit; Fresh vegetables)</i></p> <p>2. <u>Baby ever consumed vegetables?(only at stage 2&3)</u></p> <p>a. <i>(Question: What was the first solid food given to your baby? Possible responses: Readymade baby food; Homemade foods; Rusk; Baby rice; Fruit; Vegetables ; Any other food (for example, yoghurt, fromage frais or breakfast cereal)</i></p> <p>b. <i>(Question: What sort of solid foods has your baby ever had? Possible responses: Readymade baby food; Homemade foods; Rusk; Baby rice; Fruit; Vegetables ; Any other food (for example, yoghurt, fromage frais or breakfast cereal)</i></p> <p>c. <i>(Question: What sort of solid foods did your baby eat yesterday? Possible responses: Readymade baby food; Homemade foods; Rusk; Baby rice; Fruit; Vegetables ; Any other food (for example, yoghurt, fromage frais or breakfast cereal)</i></p>

Variables	Alternative specifications
	<p><u>Frequency of vegetable consumption by baby (at Stage 3)</u> <i>(Question; And how often do you usually give your baby these particular TYPES of solid foods. Solid foods include separate category for vegetable. Possible measures of frequency were: >1 per day, 1 per day, =/>3 per day, 1 or 2 per day, <1 per day, never)</i></p>
Cows' milk	<ol style="list-style-type: none"> <u>Has mother of newly born baby used Healthy Start to buy cows' milk since birth of child</u> <i>(Question directed to only Healthy Start eligibles: What did you spend your Healthy Start vouchers on? Possible responses: Infant formula; Cows' milk; Fresh fruit; Fresh vegetables)</i> <u>Has breastfeeding baby ever consumed cows' milk? (only stage 2)</u> <ol style="list-style-type: none"> <i>(Question: Which of the following kinds of milk has your baby EVER been given, even if this was only once? Possible responses: Infant formula (or "first" milk); Follow-on formula; Cows' milk; Another kind of milk)</i> <u>Does breastfed baby frequently consume cows' milk? (only stage 2&3)</u> <i>(Question: Excluding breast milk, which one of the following kinds of milk has your baby been given MOST OFTEN over the last 7 days? Possible responses: Infant formula (or "first" milk); Follow-on formula; Cows' milk; Another kind of milk; None of these)</i>
Formula	<ol style="list-style-type: none"> <u>Baby consumed only formula or not within previous 7 days</u> <i>(Question: Thinking about the milk that your baby has received over the last 7 days, has he/she had... - possible responses include: Only breast milk; Only infant formula; Breast milk and infant formula)</i> <u>Has breastfeeding baby ever consumed formula?</u> <ol style="list-style-type: none"> <i>(Question: Has your baby EVER been given infant formula, even if this was only once? – possible responses: Yes (even if only once); No)- only stage 1</i> <i>(Question: Which of the following kinds of milk has your baby EVER been given, even if this was only once? Possible responses: Infant formula (or "first" milk); Follow-on formula; Cows' milk; Another kind of milk)-only stage 2&3</i> <u>Does breastfed baby frequently consume formula? (only stage 2&3)</u> <i>(Question: Excluding breast milk, which one of the following kinds of milk has your baby been given MOST OFTEN over the last 7 days? Possible responses: Infant formula (or "first" milk); Follow-on formula; Cows' milk; Another kind of milk; None of these)</i> <u>Frequency of baby been fed with formula since birth</u> <i>(Question: Since your baby was born, how often has he/she been fed infant formula? Possible responses: All or almost all feeds; About half of all feeds; One or two feeds a day; A few feeds a week, but not every day; A few feeds since they were born, but not every week; Only once or twice since they were born)</i> <u>Has mother of newly born baby used Healthy Start to buy formula since birth of child</u> <i>(Question directed to only Healthy Start eligibles: What did you spend your Healthy Start vouchers on? Possible responses: Infant formula; Cows' milk; Fresh fruit; Fresh vegetables)</i>

Variables	Alternative specifications
Vitamins	<ol style="list-style-type: none"> <u>Baby consumes vitamins or not</u> (Question: Do you give your baby any vitamin drops? Possible responses: Yes, No) <u>Mother buys vitamins or not</u> (Question directed at mothers of babies who consume vitamins: How do you usually get the vitamin drops for your baby? Possible responses: Get free Healthy Start vitamins; Buy Healthy Start vitamins; Buy other vitamins from a supermarket, pharmacy or health food shop; Get vitamins on prescription) <u>Mother of newly born baby consumes vitamins or not</u> <ol style="list-style-type: none"> (Question: Are you taking any vitamin or iron supplements yourself? Possible responses: Yes, No) (Question directed at those who responded yes to question above: What type of supplements are you taking? Possible responses: Iron only; Multi -vitamins only; Multi-vitamins and iron combined; Vitamin D supplement; Single vitamin supplement- other; Healthy Start vitamins; Something else)
Breastfeeding	<ol style="list-style-type: none"> <u>Baby consumed only breast milk or not within previous 7 days</u> (Question: Thinking about the milk that your baby has received over the last 7 days, has he/she had... - possible responses include: Only breast milk; Only infant formula; Breast milk and infant formula) <u>Has formula feeding baby ever consumed breast milk?</u> (Question: Has your baby EVER been given breast milk (via syringe, bottle or cup etc.) or have you put your baby to the breast, even if this was only once?– possible responses: Yes (even if only once); No) <u>Duration of breastfeeding</u> <ol style="list-style-type: none"> (Question: Which of the following best describes how long you breastfed for? –possible responses: I would have liked to breastfeed for longer; I breastfed for as long as I intended; I breastfed for longer than I intended) (Question: For how long do you think you will continue breastfeeding your baby? Possible responses: Until my baby is: Either weeks old Or months and weeks old ; Don't know / have not decided) <u>Frequency of breastfeeding (only at Stage 2&3)</u> (Question: How often has your baby been given breast milk over the last 7 days? Possible responses: Not at all; Once a day; Twice a day; 3-4 times a day; 5-6 times a day; 7-8 times a day; More than 8 times a day)
Breastfeeding and infant milk	<ol style="list-style-type: none"> <u>Baby consumed breast milk and infant formula or not within previous 7 days</u> (Question: Thinking about the milk that your baby has received over the last 7 days, has he/she had... - possible responses include: Only breast milk; Only infant formula; Breast milk and infant formula)
Formula; cows' milk	<ol style="list-style-type: none"> <u>Baby ever consumed cow milk (only at Stage 2&3)</u> (Question: Has your baby EVER been given any kind of milk other than breast milk, such as infant formula or cows' milk (even if this was only once)? Possible responses: Yes (even if only once); No)
Fruits; vegetables;	<ol style="list-style-type: none"> <u>Has mother of newly born baby used Healthy Start to buy fruits; vegetables; milk; infant formula</u>

Variables	Alternative specifications
<i>milk; infant formula</i>	(Question directed to only Healthy Start eligibles: Since the birth, have you used any 'Healthy Start vouchers' to buy milk, infant formula or fresh fruit and/or vegetables? Possible Responses: Yes; No)
<i>Participation in Healthy Start scheme</i>	<ol style="list-style-type: none"> 1. <u>Mother of newly born baby eligible or not</u> (Question: Based on the list³⁹ above, are you eligible for the Healthy Start scheme? Possible responses: Yes; No; Don't know) 2. <u>Given eligibility, is mother of newly born baby on the scheme</u> (Question directed to only Healthy Start eligibles: Are you on the Healthy Start scheme? Possible responses: Yes; No)
<i>Control variables</i>	<ol style="list-style-type: none"> 1. <u>Mother aware of the health benefits of breastfeeding (stage 1)</u> <ol style="list-style-type: none"> a. (Question: While you were pregnant with this baby, did you get any information about the HEALTH benefits of breastfeeding? Possible responses: Yes; No) b. (Question: Are you aware of any health benefits in breastfeeding, either for the mother or the baby? Possible responses: Yes; No) 2. <u>Type of feeding mother had as baby (stage 1)</u> (Question: Do you know whether you were breastfed or fed with infant formula when you were a baby? Possible responses: Breastfed entirely; Fed entirely with infant formula; Both breastfed and fed with infant formula; Don't know) 3. <u>Gestation period (stage 1)</u> (Question: How many weeks pregnant were you when your baby was born?) 4. <u>Birth weight(stage 1)</u> (Question: How much did your baby weigh when he/she was born?) 5. <u>Health problems affect feeding (stage 1)</u> (Question: After the birth did you have any health problems that affected your ability to feed your baby the way you wanted to? Possible responses: Yes, No) 6. Number of children (stage 1) 7. Age of last born 8. Baby one of multiple births(stage 1) 9. Smoking status 10. Passive smoking (i.e. lives with a smokes) (stage 2) 11. Drinking alcohol status (stage 1) 12. Age of mother(stage 1) 13. Educational level(stage 1) 14. Type of occupation(stage 1) 15. Employment status 16. Working hours (stage 2&3) 17. Ethnicity (stage 1) 18. Marital status(stage 1) <p>Size of 'employee' company(stage 1&3)</p>

³⁹ This was description of the requirements for Healthy Start receipt

Appendix 57: Alternative specification of variables in LCFS 2008

Variables	Alternative specifications
<i>Fruits</i>	<ol style="list-style-type: none"> <u>Weekly household expenditure*</u> on different types of fruits separately: <ol style="list-style-type: none"> Citrus fruits(fresh) Bananas(fresh) Apples(fresh) Pears(fresh) Stone fruits(fresh) Berries(fresh) Other fresh, chilled or frozen fruits Dried fruit and nuts Preserved fruit and fruit based products <p>Each of the above data is provided separately per:</p> <ul style="list-style-type: none"> Child Adult Total child and adult Expenditure in large supermarket Internet expenditure <u>% share of food expenditure on fruits</u>: This could be derived by calculating the % of Weekly household food expenditure(available separately for child, adult; both adult & child) covered by the total expenditure for all the fruits above-named.
<i>Vegetables</i>	<ol style="list-style-type: none"> <u>Weekly household expenditure*</u> on different types of vegetables separately: <ol style="list-style-type: none"> Leaf and stem vegetables (fresh or chilled) Cabbages (fresh or chilled) Vegetables grown for their fruit(fresh, chilled or frozen) Dried vegetables Other preserved or processed vegetables <p>Each of the above data is provided separately per:</p> <ul style="list-style-type: none"> Child Adult Total child and adult Expenditure in large supermarket Internet expenditure <u>% share of food expenditure on vegetables</u>: This could be derived by calculating the % of Weekly household food expenditure(available separately for child, adult; both adult & child) covered by the total expenditure for all the vegetables above-named.
<i>Cows' milk</i>	<ol style="list-style-type: none"> <u>Weekly household expenditure*</u> on different types of milk separately: <ol style="list-style-type: none"> Whole milk Low fat milk Preserved milk Other milk products <p>Each of the above data is provided separately per:</p>

Variables	Alternative specifications
	<ul style="list-style-type: none"> • Child • Adult • Total child and adult • Expenditure in large supermarket • Internet expenditure <p>2. <u>% share of food expenditure on milk</u>: This could be derived by calculating the % of Weekly household food expenditure (available separately for child, adult; both adult & child) covered by the total expenditure for all the milk above-named.</p>
<i>Non HS products</i>	<p>1. <u>Weekly household expenditure</u>* on poultry (fresh, chilled or frozen) separately per:</p> <ul style="list-style-type: none"> • Child • Adult • Total child and adult • Expenditure in large supermarket • Internet expenditure <p>2. <u>Weekly household expenditure</u>* on cakes and puddings separately per:</p> <ul style="list-style-type: none"> • Child • Adult • Total child and adult • Expenditure in large supermarket • Internet expenditure
<i>Food</i>	<p>1. <u>Weekly expenditure</u>* on food separately per:</p> <ul style="list-style-type: none"> • Child • Total child and adult
<i>Participation in HS scheme</i>	See Table 6
<i>Prices of products</i>	<p>This dataset offers the possibility to derive the unit cost (expost price) individuals incurred for the HS products they purchased through the following steps:</p> <ol style="list-style-type: none"> Step 1: Open the 'data archive' file (in 'access' file via the file that contains the STATA files). Step 2: Open 'Aggmincodes' & 'mincodes' files and identify the code (ie MAFFCODE; 'mincode' respectively) of the HS products Step 3: Open the 'EFS diary' file and using codes identified in 'step 2' (ie MAFFCODE; 'mincode') find the corresponding quantity and expenditure data. Step 4: Calculate unit cost by dividing the quantity data for HS products by the equivalent expenditure data Step 5: Merge the resultant data to the original LCFS stata file using the unique identifier for the households (ie 'case'). This unique identifier maps to every individual in the dataset.
<i>Income</i>	<p>1. <u>Personal income-continuous data (combination of grosstel and grsstime)</u> Question (variable name: GROSSTEL)</p>

Variables	Alternative specifications
	<p>Prompt only if necessary. An estimate is acceptable. Thinking of the sources you have mentioned, what is your total personal income before deductions for income tax, National Insurance etc. (that can be weekly, monthly or an annual amount)? <i>Applies if household size is greater than or equal to one</i> <i>And is asked to/for all adult members of the household</i> <i>If income and employment responses are being recorded for individuals now</i> <i>And if respondent has (a) source(s) of income</i></p> <p><i>Question (variable name: GRSSTIME)</i> Is that a weekly, monthly or annual amount? (1) Weekly (2) Monthly (3) Annually <i>Applies if household size is greater than or equal to one</i> <i>And is asked to/for all adult members of the household</i> <i>If income and employment responses are being recorded for individuals now</i> <i>And if respondent has (a) source(s) of income</i> <i>And respondent has stated amount of total gross personal income AND total gross personal income is less than or equal to 99999997 (pounds)</i></p> <p>2. <u>Personal income-categorical data</u> <i>Question (variable name: TELBAND)</i> We put answers into income bands. Would you tell me which band represents your total personal income before all deductions. Is it... (1) Less than £100 a week (2) £100 but less than £200 a week (3) £200 but less than £300 a week (4) £300 but less than £400 a week (5) £400 but less than £500 a week (6) £500 but less than £600 a week (7) £600 but less than £700 a week (8) £700 but less than £800 a week (9) £800 but less than £900 a week (10) £900 but less than £1000 a week (11) Over £1000 a week <i>Applies if household size is greater than or equal to one</i> <i>And is asked to/for all adult members of the household</i> <i>If income and employment responses are being recorded for individuals now</i> <i>And if respondent has (a) source(s) of income</i> <i>If respondent has refused or does not know their total gross personal income</i></p> <p>3. <u>Household income-continuous data (combination of hhldamt and hhldper=GWKINC- a derived variable for weekly household income)</u> <i>Question (variable name: HHL DAMT)</i> Prompt only if necessary. An estimate is acceptable. Thinking of the income of the household as a whole, what is the total income of the whole household before deductions for income tax, National Insurance etc.? <i>Applies if household size is greater than or equal to one</i></p> <p><i>Question (variable name: HHL DPER)</i></p>

Variables	Alternative specifications
	<p><i>Is that a weekly, monthly or annual amount?</i> <i>(1) Weekly (2) Monthly (3) Annually</i> <i>Applies if household size is greater than or equal to one</i></p> <p>4. <u>Household income-categorical</u> Question (variable name: HHLDBAND) We put answers into income bands. Would you tell me which band represents the total income of the household before all deductions. Is it.. (1) Less than £100 a week (2) £100 but less than £200 a week (3) £200 but less than £300 a week (4) £300 but less than £400 a week (5) £400 but less than £500 a week (6) £500 but less than £600 a week (7) £600 but less than £700 a week (8) £700 but less than £800 a week (9) £800 but less than £900 a week (10) £900 but less than £1000 a week (11) Over £1000 a week Applies if household size is greater than or equal to one And respondent has refused to give or does not know their gross total household income</p> <p>5. <u>Equivalised Household Income McClements scale (EqIncMp)</u></p> <p>6. <u>Equivalised Household Income OED scale (EqIncOp)</u></p>
<i>Control variables</i>	See Appendix 60. Notable` additions include participation in other welfare programmes e.g. free fruit scheme, welfare milk.

*These are derived variables based on diary data

Appendix 58: Alternative specification of variables in HSE 2008

Variables	Alternative specifications
<i>Fruits</i>	<ol style="list-style-type: none"> <u>Consume fresh fruits or not</u> Question (variable name: <i>Frt</i>) <i>Did you eat any fresh fruit yesterday? Don't count fruit salads, fruit pies, etc.</i> 1 Yes 2 No <u>Quantity of fruits consumed</u> Question (variable name: <i>FrtQ</i>) <i>How much of this fruit did you eat yesterday?</i> <u>Consume dried fruit or not</u> Question (variable name: <i>FrtDry</i>) <i>Did you eat any dried fruit yesterday? Don't count dried fruit in cereal, cakes, etc.</i> 1 Yes 2 No <u>Quantity of dried fruits consumed</u> Question (variable name: <i>FrtDryQ</i>) <i>IF FrtDry = Yes THEN</i> <i>How many tablespoons of dried fruit did you eat yesterday?</i> <i>IF ASKED: 'Think about a heaped or full tablespoon'."</i> <u>Consume frozen or tinned fruit or not</u> Question (variable name: <i>FrtFroz</i>) <i>Did you eat any frozen or tinned fruit yesterday?</i> 1 Yes 2 No <u>Quantity of frozen or tinned fruit consumed</u> Question (variable name: <i>FrtFrozQ</i>) <i>IF FrtFroz = Yes THEN</i> <i>How many tablespoons of frozen or tinned fruit did you eat yesterday?</i> <i>IF ASKED: 'Think about a heaped or full tablespoon'.</i> <u>Portion of dried fruit (Derived variable name: <i>PORDRY</i>)</u> <u>Portion of frozen fruit/canned fruit (Derived variable name: <i>PORFROZ</i>)</u> <u>Portion of fruit in composites (Derived variable name: <i>PORFDISH</i>)</u> <u>Total portion of fruit (Derived variable name: <i>FRTPOR</i>)</u>
<i>Vegetables</i>	<ol style="list-style-type: none"> <u>Consume vegetables or not</u> Question (variable name: <i>VegVeg</i>) <i>Not counting potatoes, did you eat any vegetables yesterday?</i> <i>Include fresh, raw, tinned and frozen vegetables.</i> 1 Yes 2 No <u>Quantity of vegetables consumed</u> Question (variable name: <i>VegVegQ</i>) <i>IF VegVeg = Yes THEN</i> <i>How many tablespoons of vegetables did you eat yesterday?</i>

Variables	Alternative specifications
	<p>IF ASKED: 'Think about a heaped or full tablespoon'.</p> <p>3. <u>Consume salad or not</u> Question (variable name: VegSal) Did you eat any salad yesterday? Don't count potato, pasta or rice salad or salad in a sandwich. INTERVIEWER: SALADS MADE MAINLY FROM BEANS CAN EITHER BE INCLUDED HERE OR AT THE NEXT QUESTION. You can record half bowls of salad, such as 1.5, 0.5. 1 Yes 2 No</p> <p>4. <u>Quantity of salad consumed</u> Question (variable name: VegSalQ) <i>IF VegSal = Yes THEN</i> How many cereal bowls full of salad did you eat yesterday? IF ASKED: 'Think about an average-sized cereal bowl'.</p> <p>5. <u>Consume pulses or not</u> Question (variable name: VegPul) Did you eat any pulses yesterday? By pulses I mean lentils and all kinds of peas and beans, including chickpeas and baked beans. Don't count pulses in foods like Chilli con carne. 1 Yes 2 No</p> <p>6. <u>Quantity of pulses consumed</u> Question (variable name: VegPulQ) <i>IF VegPul = Yes THEN</i> How many tablespoons of pulses did you eat yesterday? IF ASKED: 'Think about a heaped or full tablespoon'.</p> <p>7. <u>Portion of salad (derived variable: PORSAL)</u> 8. <u>Portion of vegetables (derived variable: PORVEG)</u> 9. <u>Portion of vegetables in composites (derived variable: PORVDISH)</u> 10. <u>Total portion of vegetables (inc.salad) (derived variable:VEGPOR)</u></p>
<i>Fruits and vegetables</i>	<p>1. <u>Total portion of fruit and veg (derived variable: PORFV)</u> 2. <u>Grouped portions of fruit (inc.orange juice) & veg yesterday (derived variable: PORFTVG)</u></p>
<i>Cows' milk</i>	<p>1. <u>Quantity of milk consumed</u> Question (variable name: CMilkQua) <i>IF Milk = Whole, semi-skimmed, skimmed, does not have type THEN</i> About how much milk do you use each day, on average for drinks, in tea and coffee, on cereals etc. Is it ...READ OUT... 1 less than a quarter of a pint, 2 about a quarter of a pint, 3 about half a pint, 4 Or, one pint or more?</p> <p>Question (variable name: MilkQua) How much milk per day (same possible responses as above)</p>

Variables	Alternative specifications
<i>Participation in HS scheme</i>	See Table 6
<i>Income</i>	<ol style="list-style-type: none"> 1. <u>Joint income (respondent and partner)-categorical</u> Question (variable name : NJntInc) This card (SHOW CARD E) shows incomes in weekly, monthly and annual amounts. Which of the groups on this card represents <i>(your/you and your husband/wife/partner's combined)</i> income from all these sources, before any deductions for income tax, National Insurance, etc.? Just tell me the number beside the row that applies to <i>(you/your joint incomes)</i>. 2. <u>Household income -categorical</u> Question (variable name : HHInc) <i>IF 2 Adults in household who are not spouse/partner, or 3 or more adults in household</i> <i>THEN</i> Can I check, does anyone else in the household have an income from any source? 1 Yes 2 No <i>IF OthInc = Yes THEN</i> <i>HHInc</i> Thinking of the income of your household as a whole, which of the groups on this card (SHOW CARD E) represents the total income of the whole household before deductions for income tax, National Insurance, etc. 2. <u>Equivalised Income Derived-continuous</u> 3. <u>Equivalised Income Tertiles Derived-categorical</u> 4. <u>Equivalised Income Quintiles Derived-categorical</u> 5. <u>Total Household Income Derived-continuous</u>
<i>Control variables</i>	See Appendix 60

Appendix 59: Control variables covered in 6 databases taken forward

	BHPS, 2007-08	LC&FS, 2007, 2008, 2009	HSE 2007, 2008, 2009	SHS 2008, 2009	NDNS 2008-09, 2009-10	*IFS 2010
Income	✓	✓ ✓ ✓	✓ ✓ ✓	✓ ✓	✓ ✓	x
Age	✓	✓ ✓ ✓	✓ ✓ ✓	✓ ✓	✓ ✓	✓
Gender	✓	✓ ✓ ✓	✓ ✓ ✓	✓ ✓	✓ ✓	x
Nationality/ethnicity	✓	✓ ✓ ✓	✓ ✓ ✓	✓ ✓	✓ ✓	✓
Urbanisation Status	x	✓ x x	✓ ✓ ✓	x x	x x	x
Education/ qualifications	✓	✓ ✓ ✓	✓ ✓ ✓	✓ ✓	✓ ✓	✓
Tenure Status	✓	✓ x x	✓ ✓ ✓	✓ ✓	✓ ✓	x
Family Composition/ No. of children/ household type	✓	✓ ✓ ✓	✓ ✓ ✓	✓ ✓	✓ ✓	✓
Marital status	✓	✓ ✓ ✓	✓ ✓ ✓	✓ ✓	✓ ✓	✓
Occupation	✓	✓ ✓ ✓	✓ ✓ ✓	✓ ✓	✓ ✓	✓
Location/ region	✓	x x x	✓ ✓ ✓	x x	✓ ✓	x
Employment status	✓	✓ ✓ ✓	✓ ✓ ✓	✓ ✓	✓ ✓	?
Working hours	x	✓ ✓ ✓	x x x	x x	✓ ✓	?
Working days	x	x x x	x x x	x x	x x	?
Travelling to work	x	x x x	x x x	x x	x x	?
General health	✓	x x x	✓ ✓ ✓	✓ ✓	✓ ✓	?
Longstanding illness	x	x x x	✓ ✓ ✓	✓ ✓	✓ ✓	?
Number of bedrooms in the house	x	✓ ✓ ✓	✓ ✓ ✓	✓ ✓	x x	?
Car ownership	x	✓ ✓ ✓	✓ ✓ ✓	✓ ✓	x x	?
Well-being and mental health status	x	x x x	✓ ✓ ✓	✓ ✓	x x	?
Physical activities	x	x x x	✓ ✓ ✓	✓ ✓	x x	?
Smoking status	✓	x x x	✓ ✓ ✓	✓ ✓	x x	?
Pregnancy smoking status	x	x x x	✓ ✓ ✓	x x	x x	?
Drinking status	✓	x x x	✓ ✓ ✓	✓ ✓	x x	?
Social class	x	x x x	✓ ✓ ✓	✓ ✓	x x	?
Size of “employee” company	x	x x x	✓ ✓ ✓	✓ ✓	x x	?
Type of “employee” company	x	x x x	x x x	x x	x x	?
Religion	x	x x x	✓ ✓ ✓	✓ ✓	x x	?
Parent’s social class	x	x x x	✓ ✓ ✓	✓ ✓	x x	?
Work-family balance	x	x x x	x x x	x x	x x	?
Type of accommodation	x	✓ ✓ ✓	x x x	x x	x x	?

*The findings of IFS 2010 is based on published questionnaire which may not have fully reported all variables available (the dataset is yet to be released).

Appendix 60: Alternative specification of variables in DB1

Variables	Alternative specifications
<i>Participation in HS scheme</i>	Given application to HS scheme: <ol style="list-style-type: none"> 1. Eligible (or not) for HS 2. Received vouchers or not 3. HS voucher use rate 4. Total value of vouchers received
<i>Income</i>	Receipt (or not) of income support
<i>Control variables</i>	<ol style="list-style-type: none"> 1. Age 2. Marital status (have a partner) 3. Have a carer (or not) 4. Number of children 5. Ages of children 6. Pregnant(or not) 7. Town of residence

See further details in Appendices36-38

Appendix 61: Alternative specification of variables from Dunnhumby dataset

Variables	Alternative specifications
<i>Fruits</i>	Amount spent per shop or per specified unit of time (e.g. weekly) for different types of fruit % share of food bill on fruit
<i>Vegetables</i>	Amount spent per shop or per specified unit of time % share of food bill on vegetables
<i>Milk</i>	Amount spent per shop or per specified unit of time % share of food bill on milk
<i>Non HS products</i>	Amount spent per shop or per specified unit of time % share of food bill on non HS products (healthy or unhealthy)
<i>Food</i>	Amount spent per shop or per specified unit of time
<i>Participation in HS scheme</i>	HH used HS voucher in last one week/month/year
<i>Prices of products</i>	Daily/weekly price of products are available from sources external to this dataset. Some products however, will have price per kg for example on receipt.
<i>Income</i>	Not available (can be proxied using postcode based data e.g. index multiple deprivation)
<i>Control variables</i>	<ol style="list-style-type: none"> 1. At point of applying for storecard: <ol style="list-style-type: none"> a. Gender of applicant, b. postcode 2. Voluntary information at point of applying for storecard: <ol style="list-style-type: none"> a. date of birth of applicant b. number of people in household c. age of household members d. whether any special dietary requirements in household (halal, diabetic, kosher, vegetarian, teetotal) e. interest in receiving info on a) Tesco offers b) products/services from partner companies c) contact for research 3. At point of purchase: <ol style="list-style-type: none"> a. store number and associated postcode b. total value of shop c. whether product on offer or not d. weight / price in addition to cost for some vegetables e. Unit price

Appendix 62: Examples of calibration of variables between the IFS and LCFS

Control variable	LCFS specification	IFS specification	Re-calibrate in:
Age	Date of birth	Age between 20-40+ in a 5-year interval	LCFS and use the same specification as IFS
Ethnicity	6 groups: White, Mixed, Asian or Asian British, Black or Black British, Chinese, Other	A total of 16 categories which includes sub-categories of the 6 major ethnic group as in LCFS	IFS and use the same specification as LCFS
Educational qualifications	Highest level of qualification received in 8 categories	How old were you when you finished fulltime education? 4 categories – 16 or under, 17,18, 19 or over	LCFS by combining education and age information together and specify as in IFS
Family composition	<ul style="list-style-type: none"> No. people in HH No. adults in HH No. children in HH All from 0 to 16 	How many children do you have in total	LCFS and use “number of children in HH” variable
Marital status	Are you currently (9 categories of marital status)	Are you (4 categories of marital status)	LCFS by merging some categories to reflect those in IFS
Occupation	Employment situation from show card (7 categories)	<ul style="list-style-type: none"> String variables: title of job, what do you mainly do in your job, what employer do Are you an employee or self-employed? Do you have managerial duties – manager, supervisor, no/neither 	LCFS and combine categories to match either of or both: <ul style="list-style-type: none"> Employee or self-employed Manager, supervisor, neither

Appendix 63: Summary of all recommendations

Recommendation 1: Maintain and develop the Healthy Start voucher scheme

Recommendation 1.1: Improve the application process and link to other welfare benefits for example include Healthy Start in routine communications relating to qualifying benefits and tax credits

Recommendation 1.2: Speed up the process of authorising claims and issuing vouchers, inform applicants when they should follow up their applications and provide a free telephone helpline.

Recommendation 1.3: Provide application forms in different languages and formats

Recommendation 1.4: Index link the voucher value to rising prices of Healthy Start goods (fruit, vegetables and plain cows' milk)

Recommendation 1.5: Simplify eligibility criteria in-line with proposed benefit changes/universal credit so that everyone knows who is eligible

Recommendation 1.6: Provide vouchers in smaller denominations

Recommendation 1.7: Consider all the incoming changes to commissioning in the recommendations which will bring even more diversity to local commissioning arrangements

Recommendation 2: Make vitamin supplements free/universally available for pregnant women, postnatal women and children up to their fifth birthday

Recommendation 2.1: Make Healthy Start vitamin supplements universally available and not dependent on eligibility criteria.

Recommendation 2.2: Give/sell/prescribe Healthy Start vitamin supplements to pregnant/pre-conceptional women at the earliest opportunity without waiting for eligibility for Healthy Start to be confirmed.

Recommendation 2.3: In light of the best evidence available, review the dose of vitamin D for women and children and the recommended starting age for the children's vitamins.

Recommendation 2.4: Clarify all benefits and risks of vitamin supplements being distributed to all pregnant women

Recommendation 2.5: Sort out distribution and supply chain to sustain continuous stock of 'in date' vitamin supplements

Recommendation 2.6: If continuing with vitamin coupons, ensure they are easily identifiable and remove expiry dates

Recommendation 2.7: Develop vitamin supplement distribution mechanisms that do not require women to make a separate trip to collect them

Recommendation 2.8: Increase awareness among practitioners, especially GPs, of the benefits of vitamin supplements for pregnant women, new mothers and young children

Recommendation 2.9: Increase awareness among women and families of benefits of vitamin supplements for pregnant women, new mothers and young children

Recommendation 3: Develop a communication strategy to increase awareness of the Healthy Start scheme among the general population, eligible families, health professionals and retailers

Recommendation 3.1: Develop a proper communications package around the whole of Healthy Start, including publicising the website, and developing tools to identify eligibility now and following changes to welfare

Recommendation 3.2: Develop plans for communicating changes to eligibility criteria resulting from incoming changes to the welfare system

Recommendation 3.3: Increase awareness of the target population of the Healthy Start scheme and what it is trying to achieve e.g. through local and national media campaigns

Recommendation 3.4: Promotion of Healthy Start should include clear messages about the goods which can be bought with vouchers including recent update to include frozen fruit and vegetables

Recommendation 3.5: Embed provision of information about Healthy Start in antenatal, postnatal and child health pathways and guidelines e.g. through routine enquiry about possible eligibility and provision of information, and audit compliance

Recommendation 3.6: Include all of the 'early years workforce' from all sectors in promoting Healthy Start to families and providing health related information

Recommendation 3.7: Ensure that retailers registered for the scheme clearly indicate this and that local lists of registered retailers are easily available for beneficiaries and practitioners

Recommendation 3.8: Health promotion needs to address misunderstandings about what constitutes healthy fruit and vegetables. There is a common belief amongst many parents that goods such as fruit yoghurts and fruit drinks are healthy options

Recommendation 3.9: Use contemporary methods of making contact with women e.g. text messaging, websites, drop-in centres

Recommendation 3.10: Work with retailers to ensure the system for registration for Healthy Start and redeeming the value of vouchers is as simple as possible

Recommendation 3.11: Promote Healthy Start more with small retailers, market stalls, community food projects and value supermarkets to increase outlets and options for women

Recommendation 3.12: Work with retailers to ensure consistency in how vouchers can be used (e.g. how many can be accepted in one transaction and for what goods) and to eradicate negative attitudes from retail staff

Recommendation 3.13: Ensure adequate supply of information in a variety of accessible formats including relevant languages

Recommendation 4: Develop an overarching strategy for vulnerable women to increase engagement with health services accompanied by care pathways and staff training

Recommendation 5: Provide education and training for health and social care practitioners in all sectors and disciplines that encounter pregnant women and young families regarding their role in the Healthy Start scheme

Recommendation 5.1: Practitioners who encounter pregnant women and young families require education and training about their role regarding Healthy Start so they don't see themselves as 'gatekeepers'

Recommendation 5.2: Create core resources for local champions to use

Recommendation 5.3: Raise awareness of DH website and e-learning CPD course, Include in KPI/QOF frameworks for midwives and health visitors

Recommendation 6: Reframe the debate between breastfeeding and formula feeding. Research the impact of use of Healthy Start vouchers on infant feeding decisions

Recommendation 6.1: Differential guidelines regarding the use of vitamin supplements for infants who are breastfed and those who are formula fed need to be framed in such way that breastmilk is seen as the norm and not deficient

Recommendation 6.2: Information about breastfeeding for parents should avoid giving the impression that women can only breastfeed if they have a 'healthy diet' as this can be misinterpreted and felt to be unrealistic for many low-income families

Recommendation 6.3: There needs to be consideration of the implications of retaining or removing infant formula from Healthy Start for the health and nutrition of infants and children in low-income groups

Recommendation 6.4: Any increase in voucher value must be for both formula feeding and breastfeeding families

Recommendation 7: Evaluate the costs and effectiveness of Healthy Start vouchers and vitamins

Recommendation 7.1: Model the impact of using different thresholds for voucher eligibility (income and age thresholds), assessing costs and benefits, to achieve defined public health goals

Recommendation 7.2: Evaluate the costs, effects and cost-effectiveness of alternative ways of increasing 'coverage' (either increasing 'use rate' of vouchers dispensed and/or increasing applications among those who are eligible).

Recommendation 7.3: Evaluate the costs, effects and cost-effectiveness of alternative programme designs for the Healthy Start scheme (e.g. different voucher values, use of electronic cards rather than paper vouchers, coverage of different products).

Recommendation 8: Evaluate the impact of Healthy Start vouchers on the demand for: products supported by Healthy Start vouchers (i.e. vegetables, fruits, milk, formula, vitamins) and breastfeeding; other 'healthy' and 'unhealthy' products/activity not supported by the Healthy Start scheme; and overall food consumption / expenditure

Recommendation 8.1: Use the IFS to test whether there is a difference in self-reported consumption between a) eligible participant vs. eligible non-participant and b) eligible vs. non eligible low-income family with children under 4 for:

- a) fruit and vegetables at stages 2 and 3
- b) vitamins at stages 1, 2 and 3
- c) consumption of cows' milk at stages 1, 2, 3
- d) formula use at stages 1, 2, 3
- e) rates of breastfeeding at stages 1, 2, 3

Recommendation 8.2: Extend analysis in 1.1 to an area-based demand analysis to minimise likelihood of biased estimates of Healthy Start scheme (through control for important economic variables, among others).

Recommendation 8.3: Using 3 methods to predicting eligible Healthy Start participants and eligible non-participants in the LCFS, assess the impact of Healthy Start on the demand for fruit, vegetables, milk, 'healthy' food, 'unhealthy food, and all food.

Recommendation 8.4: Compare the Healthy Start product purchases in areas with high concentration of Healthy Start recipients with areas with low concentration of Healthy Start recipients using Dunnhumby data

Recommendation 8.5: Compare product purchases over time between users of Healthy Start vouchers and 'matched' sample using Dunnhumby data.

Recommendation 8.6: Compare product purchases over time (roughly 2 years) between users of Healthy Start vouchers and 'matched' sample using Kantar World Panel data for a sample of around 50-100 people in each group.

Recommendation 9: Investigate variations in use rate of Healthy Start vouchers

Recommendation 9.1: Link the DB1 data set to postcode-based data to explore associations with use rate

Recommendation 9.2: Link the results of 2.1 to predict likely success of alternative methods designed to increase coverage and link this to expected costs of these methods.

Recommendation 10: Improve the quality of existing databases

Recommendation 10.1: Improve the quality of DB1 (data held by SERCO) by checking and sorting out; postcodes, number of vouchers issued, number of children of applicant / siblings per beneficiary

Recommendation 10.2: Increase the quantity of data recorded for Tesco and Asda held in DB1 (data held by SERCO) and DB2 (data held by MRM), by linking data for voucher redemption to stores (including stores postcode) where the vouchers are redeemed rather than only providing head office data.

Recommendation 10.3: Increase the data available to SERCO (from MRM) to indicate each store from which vouchers are redeemed rather than only main redeeming store.

Recommendation 10.4: Improve quality of data held on vitamins at PCT level by a) considering what might improve its reliability and b) linking to number of Healthy Start beneficiaries per quarter/year.

Recommendation 10.5: Improve future DB4 data (held and generated by FDS) by: use of random sampling methods; use of more control variables in questionnaires, including use of post codes; links to individual ID numbers held in DB1; and return to the same group of respondents again (including if they are no longer receiving Healthy Start vouchers).

Recommendation 10.6: Add in questions about the quantity of fruit, vegetables, vitamins, formula and milk consumed to IFS

Recommendation 10.7: Ask about receipt of Healthy Start vouchers in the living costs and food survey (and if hand-held devices are to be used in this survey, ensure the Healthy Start vouchers can be scanned in)

Recommendation 10.8: Add postcode data to the next Infant Feeding Survey to extend the linkage possibilities and extend use of explanatory control variables.

Recommendation 11: Conduct new primary data collection to inform future analysis of the impact of Healthy Start on breastfeeding and demand for products supported by Healthy Start.

Recommendation 11.1: Add questions on total food expenditure, prices paid, a larger set of control variables including income to the IFS in a specific follow-up data collection exercise to IFS 2010.

Recommendation 11.2: Add questions on total food expenditure, prices paid, a larger set of control variables including income to the next IFS survey.

Recommendation 11.3: Repeat annual data collection (ideally with the variables in recommendation 5.1) with 2 groups of women who participated in IFS 2010: those using Healthy Start vouchers and a 'matched' comparison group over time until the birth cohort reaches 5.

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